THE LANCET.

A Journal of British and Foreign Medicine, Surgery, Obstetrics, Physiology, Chemistry, Pharmacology, Public Health, and News.

Telegrams—LANCET, WESTRAND LONDON *Telephones*—GERRARD 4314 & 4315 *Offices*—423, Strand, London, W.C.2.

No. II. OF VOL. II., 1921. **LONDON, SATURDAY, JULY 9, 1921.** **Pp. 112—Price 1s.**

No. 5106. Vol. CCI. Founded 1823. Registered as a Newspaper. Published Weekly. Annual Subscription Inland £2 2s. Abroad £2 10s.

By H. J. WARING, M.S., M.B., B.Sc.Lond., F.R.C.S., Surgeon to, and Joint Lecturer in Surgery at, St. Bartholomew's Hospital; Consulting Surgeon to the Metropolitan Hospital; Member of Court of Examiners, Royal College of Surgeons; late Examiner in Surgery, University of London.

New Edition Shortly. 8vo, extra cloth. Pp. xvi.+336, with 58 Engravings. Price 12s. 6d. net.

SURGICAL DISEASES OF THE GALL-BLADDER, BILE DUCTS, AND LIVER.

THEIR PATHOLOGY, DIAGNOSIS, AND TREATMENT.

(Including Jacksonian Prize Essay.)

Henry Frowde & Hodder & Stoughton, 1 & 2, Bedford-street, London, W.C. 2.

Third Edition. With many Illustrations. 12s. 6d. net.

TREATMENT OF DISEASES OF THE SKIN.

By KNOWSLEY SIBLEY. M.D. Camb.

London: Edward Arnold & Co., 41 and 43, Maddox-street, W. 1.

BY W. SOLTAU FENWICK, M.D.

CANCER OF THE STOMACH.

362 pages. 10s. 6d.

ULCER OF THE STOMACH AND DUODENUM.

392 pages. 10s. 6d.

J. & A. Churchill, 7, Great Marlborough-street, London, W. 1.

DYSPEPSIA: Its Varieties and Treatment.

Octavo, 455 pages. 13s. net.

Now Ready. Pp. xi. + 269. With 3 Charts. 5s. net.

ON ALCOHOLISM: Its Clinical Aspects and Treatment.

By FRANCIS HARE, M.D., Medical Superintendent of the NORWOOD SANATORIUM, Beckenham.

"Marked by candour, common sense, and moderation ..... likely to become the standard text-book."—BRITISH MEDICAL JOURNAL.

London: J. & A. Churchill, 7, Great Marlborough-street.

THE ELEMENTS OF PRACTICAL PSYCHO-ANALYSIS.

By PAUL BOUSFIELD, M.R.C.S., L.R.C.P.,

Physician to the London Neurological Clinic.

With Glossary and one Plate. 10s. 6d. net.

(List of Psycho-Analytical Publications free.)

Kegan Paul & Co., Ltd., 68-74, Carter-lane, London, E.C.

JUST PUBLISHED. SECOND EDITION.

With 9 Coloured Plates and 198 other Illustrations. Royal 8vo. £3 10s. 0d. net.

SURGERY OF THE UPPER ABDOMEN.

By J. B. DEAVER, M.D., Sc.D., LL.D., F.A.C.S., Barton Professor of Surgery in the University of Pennsylvania, Surgeon-in-Chief to the Lankenau Hospital, and Surgeon to the University Hospital, and

A. P. C. ASHHURST, A.B., M.D., F.A.C.S., Associate in Surgery to the University of Pennsylvania, Surgeon to the Episcopal Hospital, Philadelphia, Colonel, Medical Reserve Corps, U.S. Army.

P. B. Blakiston, Philadelphia. Obtainable from H. K. Lewis & Co. Ltd., 136 Gower-street, London, W.C. 1.

E. & S. LIVINGSTONE, PUBLISHERS,

17, Teviot Place, Edinburgh.

JUST PUBLISHED.

Demy 8vo. Cloth. Pp. xvi. + 900. 137 Illustrations and 1 Coloured Plate. 30s. net; postage 1s. FOURTH EDITION.

TEXT-BOOK OF MEDICAL JURISPRUDENCE & TOXICOLOGY.

Revised by JOHN GLAISTER, M.D., D.P.H. Camb., F.R.S.E., Professor of Forensic Medicine, University of Glasgow.

SAUNDERS' NEW BOOKS

AND NEW EDITIONS.

See Saunders' Advertisement on Page 3.

JUST PUBLISHED. Large 8vo. Illustrated. 21s. net.

THE SPLEEN

AND SOME OF ITS DISEASES.

By SIR BERKELEY MOYNIHAN, K.C.M.G., C.B.

London: Simpkin & Co., Ltd. Bristol: J. Wright & Sons, Ltd.

SECOND EDITION. Demy 8vo. 280 pp. 36 Plates, 93 Illus. 10s. 6d. net.

A TEXT-BOOK OF RADIOLOGY (X-RAYS).

By E. REGINALD MORTON, M.D., C.M., F.R.C.S.

"Can be confidently recommended."—ARCHIVES OF RADIOLOGY.

Henry Kimpton, 263, High Holborn, London, W.C. 1.

Just Ready. Cr. 8vo. 404 pp. 11 plates. 76 Illus. 10s. 6d. net (by post 11s.)

ESSENTIALS OF MEDICAL ELECTRICITY.

By ELKIN P. CUMBERBATCH, B.M., B.Ch., M.R.C.P.

FIFTH EDITION, REVISED AND ENLARGED.

Henry Kimpton, 263, High Holborn, London, W.C. 1.

PLASTIC SURGERY OF THE FACE.

By H. D. GILLIES, C.B.E., F.R.C.S., Major R.A.M.C.

Plastic Surgeon, Queen's Hospital, Sidcup, and Prince of Wales' Hospital, London, N.

Medium 4to. Cloth. 424 pages. 844 Illustrations.

Price £3 3s.

Henry Frowde and Hodder & Stoughton, 1 & 2, Bedford-street, London, W.C. 2.

OXFORD MEDICAL PUBLICATIONS.

ORTHOPÆDIC SURGERY OF INJURIES.

Edited by Sir ROBERT JONES, K.B.E., C.B., F.R.C.S.

In two Royal 8vo Volumes. Cloth. 1300 Pages. Fully Illustrated in colour and black and white.

Price £4 4s. net per set.

(See also page 2.)

Henry Frowde and Hodder & Stoughton, The *Lancet* Building, 1 and 2, Bedford-street, London, W.C. 2.

LEWIS'S PUBLICATIONS

NOW READY. SIXTH Edition. With Plates from Original Drawings (6 in Colours) and other Illustrations in Text. Demy 8vo. £2 2s. net.

ON DISEASES OF THE LUNGS AND PLEURÆ, including Tuberculosis and MEDIASTINAL GROWTHS. By Sir RICHARD DOUGLAS POWELL, Bart., K.C.V.O., M.D.Lond., F.R.C.P., Physician in Ordinary to H.M. the King; Consulting Physician to the Middlesex and Brompton Hospitals; and Sir P. HORTON-SMITH HARTLEY, C.V.O., M.D.Camb., F.R.C.P., Physician, St. Bartholomew's Hospital; Senior Physician, Brompton Consumption Hospital, &c.

"This book is ..... of remarkable value. The illustrations supplementing the text are well chosen. As for treatment, the book is a useful milestone."—THE LANCET.

JUST PUBLISHED. With Illus. Crown 8vo. 4s. 6d. net; postage 4d.

THE CLINICAL EXAMINATION OF DISEASES OF THE LUNGS,

By E. M. BROCKBANK, M.D.Vict., F.R.C.P., Dean of Clinical Instruction, Univ. of Manchester, &c.; and A. RAMSBOTTOM, M.D.Vict., F.R.C.P., Lecturer in Clinical Medicine, University of Manchester, &c.

"..... many useful hints which are far too rare in text-books."—THE LANCET.

NOW READY. FOURTH EDITION. Thoroughly Revised. With Illustrations. Crown 8vo. 5s. net; post free 5s. 5d.

THE DIAGNOSIS AND TREATMENT OF HEART DISEASE: Practical Points for Students and Practitioners.

By E. M. BROCKBANK, M.D. Vict., F.R.C.P., Hon. Physician, Royal Infirmary, Manchester, &c.

"The text is practicable and reliable as ever."—THE LANCET.

*** Complete Catalogue Post Free on Application.*

LONDON: H. K. LEWIS & CO. LTD., 136 GOWER STREET & 24 GOWER PLACE, W.C. 1.

Telegrams: "Publicavit, Euroad, London." [*Telephone: Museum 1072.*

USE LESLIES' ZŌPLA (ZINC OXIDE PLASTER)

A PERFECT STRAPPING

ZŌPLA is tenaciously Self-adhesive, will not slip, will stand any strain imposed on it, is Antiseptic, and is absolutely Non-irritating. The Sale is steadily growing. British Made.

Supplied on White and Flesh-colour Cloths, also on Holland, on Spools ½" to 4", 5 or 10 yard lengths, in rolls 7" and 12" wide. Also on moleskin, chamois leather, felts, and waterproof cloth. **SAMPLES ON REQUEST.**

ZŌPLA is made by the firm with the reputation for BROWN HOLLAND STRAPPING (Original make).

Telephone—Walthamstow 686

LESLIES LTD., High Street, Walthamstow, LONDON, E.17

NOVARSENOBENZOL

N·B·C

CORBIÈRE

Approved by the
Ministry of Health
for use under the
Public Health
(Venereal Diseases)
Regulations, 1916.

Sole Distributing Agents:—
MODERN PHARMACALS, LTD.,
48, Mortimer Street, LONDON, W. 1.

"Semprolin" Emulsion

IN Liquid Paraffin therapy, "Semprolin" Emulsion is preferable to plain oil because it mingles more thoroughly and easily with the stomach contents, obviating nausea and softening the fæces effectively; because it is far more palatable and is therefore taken regularly by patients; and because other medicaments can be prescribed with it in the same dose.

In 8-oz. and 16-oz. Bottles.

contains
sixty per cent. of the
PUREST LIQUID PARAFFIN
of
HIGHEST VISCOSITY
Perfectly Emulsified.

∴ ∴ ∴

Supplied as SIMPLE EMULSION or combined with SALOL, GUAIACOL, PHENOLPHTHALEIN, etc.

Samples Free to MEDICAL MEN

THE WM. BROWNING CO., Ltd.,
MANUFACTURING AND EXPORT CHEMISTS,
Albert Works, Park Street, London, N.W.1.

THE LANCET.

No. 5106. LONDON, SATURDAY, JULY 9, 1921. Vol. CCI.

CONTENTS.

THE WHOLE OF THE LITERARY MATTER IN THE LANCET IS COPYRIGHT.

LUMLEIAN LECTURES on Some Points in the Ætiology of Skin Diseases. Delivered before the Royal College of Physicians of London on March 10th, 15th, and 17th, 1921, by ARTHUR WHITFIELD, M.D., F.R.C.P., Physician in Charge, Skin Department, King's College Hospital.—Lecture I. 61

ORIGINAL ARTICLES.

The Capillary Pressure and the Circulation in Shock. By LEONARD HILL, M.B., F.R.S., and JAMES MCQUEEN 65

Diagnosis and Treatment of Diphtheria. By FREDERIC H. THOMSON, M.B., C.M., D.P.H., Medical Superintendent, North-Eastern Hospital, London, N. 68

Effects of Hot and Cold Applications to the Surface of the Body on the Temperature of the Muscles, Liver, Kidneys, and Brain. By J. J. R. MACLEOD, M.B., Ch.B., D.P.H., F.R.C.S., Professor of Physiology, University of Toronto; and N. B. TAYLOR, M.B., M.R.C.S., F.R.C.S.E., formerly Captain, C.A.M.C., Lecturer in Physiology, University of Toronto. (From the Laboratory of Physiology, University of Toronto.)—(*Illustrated*) 70

An Anomalous Response to Direct Faradic Stimulation of a Nerve at Re-exploratory Operations. By JOHN S. B. STOPFORD, M.D., Professor of Anatomy, University of Manchester.—(*Illustrated*) 73

Two Cases of Aplastic Anæmia. By E. C. PILLMAN WILLIAMS, M.B., B.S., Research Student under Medical Research Council... 74

The Colon and Colitis (Abridged). By LORD DAWSON OF PENN, G.C.V.O., C.B., F.R.C.P.: Physician-in-Ordinary to H.M. The King 91

The Work of the National Institute for Medical Research. By Dr. H. H. DALE, F.R.S. 112

MEDICAL SOCIETIES.

London Association of the Medical Women's Federation: Birth Control 75

REVIEWS AND NOTICES OF BOOKS

Studies in Deficiency Diseases. By Robert McCarrison, M.D., D.Sc. 76

Critical Microscopy. By Alfred C. Coles, M.D., D.Sc., M.R.C.P., F.R.S. 76

Manual of Midwifery. Third edition. By Henry Jellett, M.D., F.R.C.P.I., and David G. Madill, M.B., B.Ch., B.A.O. 77

Psychanalysis in the Classroom. By George H. Green, B.Sc., B.Litt. 77

The Problem of the Nervous Child. By Elida Evans 78

The Sex Factor in Human Life. By T. W. Galloway, Ph.D. 79

Teeth and Health. By Thomas J. Ryan and Edwin F. Bowers 79

Eminent Chemists of our Time. By Benjamin Harrow, Ph.D. 79

Studies in the History and Method of Science. Edited by Charles Singer. Vol. II. 80

String Figures. Second edition. By W. W. Rouse Ball 80

Research Laboratory Papers. By Dr. E. M. Houghton 80

British Journal of Experimental Pathology 81

American Journal of Ophthalmology 81

The Optician and Scientific Instrument Maker 81

British Journal of Children's Diseases 82

NEW INVENTIONS.

A Compact Warm Ether Inhaler (Dr. G. A. Ticehurst).—(*Illustrated*) 82

LEADING ARTICLES.

NATIONAL INSURANCE IN THE U.S.A. 83

SILICOSIS 83

FREUDISM IN MEDICINE 84

M.O.H. REPORTS 85

INDEX NOTICE.

THE LANCET, Vol. I., 1921 111

ANNOTATIONS.

Medicine in Evolution 86

The Irregular Incidence of Plague in India 86

The Oculo-Motor Nuclei and their Tracts 87

Antarctic Bacteria 88

Cæsarean Section: Twenty-one Years' Experience 88

Jubilee of Professor Léon Fredericq 89

Stereoscopic Views of the Middle Ear 89

A Tribute to Dr. Addison 89

The Fæces in Alimentary Disorders 89

The Position of Intestinal Coils 90

The Sirocco Fan 90

A Stomach Tube for Induction of Labour 90

The Pathological and Bacteriological Laboratory Assistants' Association 91

The Paratympanic Sense-Organs 91

PUBLIC HEALTH SERVICES.

Annual Reports of Medical Officers of Health 94

CORRESPONDENCE.

The Arm-training School at Roehampton (Mr. E. Muirhead Little) 96

"Psychotherapy" (Sir H. Bryan Donkin) 96

The Action of Tartar Emetic in Bilharziasis (Dr. V. S. Hodson) 97

"Circular 202" (Dr. A. Mearns Fraser) 97

Digitalis and the Peripheral Circulation (Dr. I. Harris)... 97

On Death from Respiratory and not from Cardiac Failure (Sir William Milligan) 98

SPECIAL ARTICLES.

The Private Clinic System: Adjourned Debate 99

Ireland 102

Czecho-Slovakia 102

Control of Venereal Diseases 103

OBITUARY.

H. Work Dodd, F.R.C.S. 98

Douglas Vernon Cow, M.D., B.C., D.P.H. 98

Percy Evershed Wallis, M.R.C.S., L.R.C.P. 106

THE SERVICES.

Royal Naval Medical Service 104

Royal Army Medical Corps.... 104

Royal Air Force 104

Indian Medical Service 104

MEDICAL NEWS.

University of Sheffield 98

University of Cambridge: Pass-list 105

University of Oxford: Pass-list 105

University of St. Andrews: Pass-list 105

University of Durham: Faculty of Medicine: Degrees conferred 105

Great Northern Hospital 82

Health of the Belgian Congo: a Conference 95

Research Defence Society 105

Society for the Study of Inebriety 106

Harveian Society 106

Metropolitan Hospital Sunday Fund 106

Lloyd's Health Insurance Society 106

British Hospitals Association 106

Treatment of the Insane 106

Infant Welfare Conference ... 107

Child Welfare Fête 107

Donations and Bequests 107

Manchester University Graduation Ceremonial 107

PARLIAMENTARY INTELLIGENCE.

House of Lords 107

House of Commons: The Blind Population of India. — Report of Committee on Pensions.—Hospitals and the Key Industries Bill. — The Occupational Census. — New Hospital Commission.—Voluntary Hospitals in Ireland.—The Washington Conventions.—Dentists Bill. — Pension Statistics.—National Health Insurance Bill 107

NOTES, SHORT COMMENTS, &c.

Public Health in Egypt, 1919.. 113

Housing in Yorkshire and Lancashire 114

Rubber Rings round Test-tubes 114

The Women's Holiday Fund 114

Appointments 110

Vacancies 110

Births, Marriages, and Deaths 111

Medical Diary 111

MALARIA AT HOME AND ABROAD.

By **Lieut.-Col. S. P. JAMES**, M.D., D.P.H., I.M.S. (retired). Adviser on Malaria to the Ministry of Health, and a Medical Officer of the Ministry. With 1 Coloured Map, and 104 Full-Page and Text Figures. Crown 4to. 25s. net, postage 1s.

"A comprehensive and lucid account. ..... The publication of this work at the present time is especially opportune. The subject-matter is well arranged and the text is supplemented by a large number of excellent illustrations and diagrams. The terse and graphic style of the author greatly adds to the interest of the book, which should be read by everyone concerned with malaria and its problems."—*Lancet.*

"Colonel James has filled a real want. ..... It is a first-class work, excellent in every way."—*British Medical Journal.*

ESSENTIALS OF TROPICAL MEDICINE.

By **W. E. MASTERS**, M.D., M.R.C.S., L.R.C.P., Medical Officer, Gold Coast. With 9 Full-Page Coloured Plates and about 400 Illustrations in the Text. Royal 8vo. £2 2s. net, postage 1s. 3d.

"The idea of the book is excellent."—*British Medical Journal.*

"Contains valuable information, and will serve a useful purpose."—*Lancet.*

"The book is excellent. ..... We can confidently recommend it to anyone desirous of obtaining a concise, practical, and up-to-date account of Tropical Medicine."—*Medical Times.*

JOHN BALE, SONS & DANIELSSON, LTD., 83-91, Great Titchfield Street, London, W. 1.

OXFORD MEDICAL PUBLICATIONS

THE ANATOMY OF THE HUMAN ORBIT AND ACCESSORY ORGANS OF VISION

By S. ERNEST WHITNALL, M.A., M.D., B.Ch. Oxon., M.R.C.S., L.R.C.P. Lond.,

Professor of Anatomy, McGill University, Montreal; late University Demonstrator of Human Anatomy, Oxford.

Demy 8vo. Cloth. Well Illustrated. Price **35s.** net.

THE CARE OF EYE CASES

A Manual for the Nurse, Practitioner, and Student.

By R. H. ELLIOT, D.Sc., M.D., M.B., L.R.C.P., F.R.C.S., Colonel I.M.S.,

Lecturer on Ophthalmology, London School of Tropical Medicine; Hunterian Professor of Pathology and Surgery, R.C.S. Eng.

Demy 8vo. Cloth. Illustrated. Price **12s. 6d.** net.

PROSTHETIC DENTISTRY FOR DENTISTS AND DENTAL STUDENTS

By D. P. GABELL, R.C.S. Edin.,

Dental Surgeon to the Royal Dental and Charing Cross Hospitals, Lecturer on Dental Mechanics to the University of London at the Royal Dental Hospital.

Demy 8vo. Cloth. Illustrated. Price **12s. 6d.** net.

THE EARLY DIAGNOSIS OF THE ACUTE ABDOMEN

By ZACHARY COPE, B.A., M.D., M.S. Lond., F.R.C.S. Eng.,

Surgeon to Out-patients, St. Mary's Hospital; Surgeon to the Bolingbroke Hospital; Hunterian Professor, R.C.S., &c.

Demy 8vo. Cloth. Illustrated. Price **12s. 6d.** net.

STUDIES IN DEFICIENCY DISEASE

By ROBERT McCARRISON,

D.Sc., LL.D., M.D., F.R.C.P.,

Lieut.-Col. I.M.S., Hon. Surgeon to the Viceroy of India.

Crown 4to. Cloth. Well Illustrated. Price **30s.** net.

SURGICAL ASPECTS OF DYSENTERY, including LIVER ABSCESS

By ZACHARY COPE,

B.A., M.D., M.S. Lond., F.R.C.S. Eng.

Surgeon to Out-patients, St. Mary's Hospital.

Demy 8vo. Cloth. 172 Pages. Illustrated, and 2 Colour Plates. Price **12s. 6d.** net.

EARLY DIAGNOSIS OF TUBERCLE

By CLIVE RIVIERE, M.D., F.R.C.P.,

Physician to the City of London Hospital for Diseases of the Chest.

THIRD EDITION.

Crown 8vo. Cloth. 35 Illustrations. Pp. xvi. + 318. Price **15s.** net.

MENTAL HOSPITAL MANUAL

By JOHN MACARTHUR, M.R.C.S., L.R.C.P.,

Senior Assistant Medical Officer, London County Mental Hospital, Colney Hatch.

Demy 8vo. Cloth. Price **15s.** net.

ELECTRO-THERAPEUTICS FOR PRACTITIONERS

By FRANCIS HOWARD HUMPHRIS,

M.D. Brux., F.R.C.P. Edin., M.R.C.S. Eng., D.M.R.E. Cantab..

Demy 8vo. Cloth. Illus. *Second Edition.* Revised and Enlarged. **21s.** net.

HEART DISEASE—GRAPHIC METHODS

By JOHN HAY, M.D., M.R.C.P.,

Assistant Physician, Liverpool Royal Infirmary.

With an Introduction by Sir JAMES MACKENZIE, F.R.S.

SECOND EDITION.

Demy 8vo. Cloth. Illustrated by 128 Figures and Tracings. Pp. xxiv. + 178. Price **12s. 6d.** net.

HENRY FROWDE AND HODDER & STOUGHTON,
THE *LANCET* BUILDING,
1 & 2, BEDFORD STREET, LONDON, W.C. 2.

Lumleian Lectures

ON

SOME POINTS IN THE ÆTIOLOGY OF SKIN DISEASES.

Delivered before the Royal College of Physicians of London on March 10th, 15th, and 17th, 1921,

BY ARTHUR WHITFIELD, M.D., F.R.C.P. LOND.,
PHYSICIAN IN CHARGE, SKIN DEPARTMENT, KING'S COLLEGE HOSPITAL.

LECTURE I.*

THE study of disease as it affects the skin is by no means without interest and importance, but depending, as it often does, on minute clinical signs and intricate histological changes it is a subject which appears to me to offer great difficulty to the lecturer in his endeavour to produce an interesting discourse. I think it will be admitted by most physicians that dermatology has been in some respects the Cinderella of the special medical studies, and that while neurology, and more recently cardiology, have held honoured places as subdivisions of the great study of general medicine, dermatology has been viewed with a certain degree of contempt.

The cause of this is, perhaps, not far to seek. Whereas neurology and cardiology in their earliest infancy were connected with much patient and brilliant pathological research, dermatology was unfortunately hampered in its youth by a cumbrous and fanciful pseudo-botanical nomenclature, and the earlier research work was, perhaps, too exclusively devoted to histological details, some of which may have been, like the already mentioned nomenclature, fanciful and without good foundation.

I believe that these errors are now passing away, and that a more rational method of study is developing; that less close attention is being devoted to peculiar efflorescences and distribution, and certainly less to the invention of hybrid classical names, and that greater effort is being expended on the elucidation of the ætiology and pathology of the cutaneous abnormalities with which we have been long familiar. Since this change has been instrumental in bringing dermatology into closer relationship to general medicine as a whole, and as it is my hope to attempt to offer you a discourse not entirely without interest to the general physician, I have chosen this matter of ætiology as the subject of my lectures.

It was at first my intention to deal with the internal factors only, as being of greater general medical interest. On further consideration, however, I came to the conclusion that there existed points of interest to the physician in certain cases of almost exclusively local ætiology. I therefore decided to include some discussion of the external factors as well.

Perhaps it is necessary to state that I claim no originality for the work I intend to review; some of it has been published for some time, some of it is still in a more or less inchoate state, and much of it has been suggested to me by friends and colleagues in informal interchange of views.

When we attempt to separate the external from the internal factors in ætiology we are met at once with a good deal of difficulty. These two factors are frequently inseparable, and even in cases where the condition seems to be due very obviously to one or other alone careful observation may sometimes show that a combination is at work after all.

In support of this contention I would mention two types of skin condition.

EFFECT OF CONSTITUTIONAL CONDITION ON DISEASES DUE TO LOCAL IRRITATION.

The first is that of occupational dermatitis, where apparently we have to deal with the action of a local irritant pure and simple; yet further investigation has shown that in some forms at least of so-called professional dermatitis a strong internal ætiological factor is present. Jacquet and Jourdanet [1] found that of 29 cases of professional dermatitis they were able to cure or improve 14 cases by dieting, local treatment, and removal from work, 4 cases by dieting and removal from work without local treatment, and 9 cases by dieting without local treatment or cessation of work, while in the two failures it was found that the treatment had not been carried out. If I may be allowed to criticise this paper, I would suggest that in that group which recovered without in any way interfering with the professional occupation, it is at least open to doubt whether the disease could fairly be called professional dermatitis.

EFFECT OF LOCAL STIMULANT ON DISEASES OF INTERNAL ORIGIN.

The second condition that I would mention is the eruption produced by the ingestion of bromides. In this case we have a condition that is apparently due almost purely to the noxious influence of the ingested drug, and further it is, I think, common knowledge that where there is insufficiency of the renal function the eruption may be called forth by smaller doses. Yet even here there is or may be a local factor at work.

Some years ago I reported a case of bromide eruption on the face of a young infant occurring on the third day after birth. This was apparently due to absorption of bromide in utero, since the mother, who had taken large doses during pregnancy, never had any milk, and the baby was given no drugs at any time. Here we see what is probably the influence of light, as the eruption was not present at birth, and when it appeared did so on the face.

A second instance of the same eruption, but with a different local ætiology, may also be of interest. This was the case of an epileptic male, 38 years of age, who had taken bromide in large quantities since early youth. He suffered from time to time from small acneiform lesions, but nothing to cause any great inconvenience. A few years before he came to me he had a fall from his bicycle and grazed his left shin severely and his right one slightly. The wounds healed slowly, and as soon as he reached his usual dose of bromide the damaged areas became the seats of a typical bromide eruption of the tuberous type. He was sent to me to see if I could help him while he continued the drug, but everything I tried was quite valueless.

These two cases led me to ponder over the localisation of the bromide eruption of the tuberous type, and I suggest that this depends very largely on local irritation. The commonest sites are, I think, the face, the buttocks in children, and the tibial regions in older people. I believe the localisation on the face to be due to exposure to light, that on the buttocks and thighs of infants to irritation by the wet napkin, and possibly also to friction by scrubbing along on the floor, and that the shins of older people are attacked because they are so frequently the site of mechanical injury.

In connexion with the bromide eruptions I may describe a case [2] in which the occurrence of the bromide lesion determined the site of a syphilitic eruption. The patient was a young woman who was sent to my out-patient department with some tuberous papules on the upper lip and chin. On examination these showed the typical miliary pustules lying in dome-shaped nodes. The diagnosis of bromide eruption was offered and inquiry was made of the doctor as to whether he had given the drug. He replied that he had given bromide of potassium for a fortnight for the treatment of severe headache. The drug was discontinued and the patient kept under observation, and in a fortnight the eruption was in full retrogression. A week or so later, however, the infiltration seemed to be returning although no more of the drug had been ingested. On close examination it was observed that the character of the nodules

* Lectures II. and III. will appear in subsequent issues of THE LANCET.

was changing. They no longer showed the pinhead pustules: they were much darker in colour and tougher and less succulent in consistence. In fact, they now suggested the diagnosis of papular syphilis, and as no further clinical evidence was forthcoming beyond the somewhat persistent and severe headache, the blood was examined and found to give a strongly positive Wassermann reaction. The patient was accordingly treated with arsenobenzol injections and mercury, and all the symptoms cleared up rapidly.

In this case, therefore, we have apparently an instance of the damage to the tissues by bromide determining the localisation of the syphilide. It is regrettable that we could not ascertain definitely the stage of the syphilis. I was inclined to believe from the severe headache and general toxæmia that the infection was early, but I felt it was unjustifiable to delay treatment in order to allow further secondary symptoms to develop and prove the position, as I considered it would be detrimental to the patient's future.

Such a case as the above appears to me to have an added interest for the reason that it sets a trap for the unwary. Having once established a firm diagnosis one is naturally apt to rest content, but this is not really justifiable in any case where the course of the eruption takes an unexpected turn. One should, I think, be prepared to review one's original diagnosis in the light of any fresh evidence that may develop and although I am not attempting in these lectures to present to you any of the extremely fine details upon which we rely to make our diagnosis, I may be permitted to point out that it is only by the acquisition of minute powers of observation that the all-important diagnosis can be made, and often in such a way that the ætiology may be suspected.

PROBLEMS OF INFLAMMATORY DERMATITIS.

I may now turn to some of the more puzzling forms of inflammatory dermatitis, which strain to the utmost the capacity of the dermatologist who attempts to make an ætiological diagnosis. We are met here at once by a wrangle about nomenclature to which I should like to avoid referring, as I have already expressed my disapproval of the undue importance which has been attributed to names and classification in the past. Nevertheless one must have a label for a set of clinical symptoms, and this label should be intelligible to other workers.

The dispute to which I refer is about the term "eczema." Willan and Bateman applied it to an eruption chiefly of external origin, eczema solare, &c. They did, however—and this was a great merit—define exactly the clinical lesion to which they applied the term, and they pointed out that the essential lesion was a small tense vesicle which formed aggregations. Later the French authors laid stress on the diathetic causation of the eruption, and later still Hebra returned more or less to the Willan-Bateman ideas. Up to this point the disease was considered to be a non-infective dermatitis.

After this Unna took up the subject, and in my opinion set dermatology on the wrong track by an inaccuracy of clinical observation. He described the essential lesion as to all intents and purposes a flaccid bulla or pustule, and sought to prove that it was due to an infection with a pyogenic organisation that he named the morococcus. This infective theory had a considerable vogue, and Leredde of Paris wrote a monograph on it entitled "Eczema: Maladie Parasitaire." Unna, in spite of his immense amount of work, unintentionally did, in my opinion, great disservice to dermatology by his theories, and although they have largely lost favour the echo of them still remains here and there.

From all this arose the question: "To what are we to attach the name of eczema?" Henceforward the dermatological world became divided roughly into two camps—namely, those who, relying on the type of lesion present, classed all eruptions of a certain clinical form as eczema, and those who wished to exclude from the category all those eruptions in which an external irritant could be found to be the cause. This latter group, however, required a label for the syndrome and they called it dermatitis.

I confess myself an unrepentant adherent of the older Willan-Bateman school. It appears to me that eczema is rather a type of reaction than a disease, and that the name is still a useful label for a certain clinical type of eruption. To call it dermatitis is only to transfer the difficulty to another label which does not connote in a familiar manner a certain group of symptoms. I shall therefore assume that by eczema we mean an eruption of pinhead-sized œdematous papules which may or may not go on to the formation of macroscopic vesicles, such papules not showing well-marked intrinsic enlargement but rather running together to form sheets, in some cases disappearing in the centre of the patch and spreading at the edge so that rings and polycyclical figures are formed. The papules may be follicular in site, or may occur on the glabrous portions of the skin. They may form very acutely, in which case the serous exudation and hyperæmia are the most marked features, or, if the inflammation is of lower intensity and more chronic nature, hyperkeratosis and scaling are more in evidence.

The frequency of eruptions of this type is such that if we can elucidate their ætiology and thereby arrive at an efficient method of treatment we shall be in a position to deal satisfactorily with the majority of the skin diseases met with in general and special practice.

I have been guilty of attempting to define eczema in a more or less ætiological manner in the following terms:—

Eczema is an acute or chronic eruption of pinhead-sized œdematous papules and vesicles due to an exalted susceptibility of the skin, either congenital or acquired, to the action of external irritants. In attempting to form a conception of the ætiology of these eruptions I have been greatly aided by the work of Prof. Jadassohn[3] on the external factor.

SUSCEPTIBILITY AND IDIOSYNCRASY TO EXTERNAL AGENCIES.

If we take a large number of individuals we shall find that we can divide them roughly into three groups. The first and much the largest group will show roughly the same reaction to common irritants such as chemical and physical agencies. Such a reaction may therefore be called the normal susceptibility of the skin. A second, and for our purpose less important group, will show a resistance much greater than normal, and these people need not delay us since they do not as a rule suffer from eczema at all. The third and most important group show an unusual susceptibility to one or more irritants, and these may be said to have an undue susceptibility of the skin to agencies which are irritants to most people. This last group may again be subdivided into those who show a susceptibility to one agency and those who show it to most irritants. Accordingly we may say that they show a "special" or a "general" susceptibility. Unless a certain heightening of this susceptibility has taken place from repeated action of the irritant it is largely a matter of dosage in these cases, and this is an important point, because there is another class of patient who reacts in a way which appears to be different.

There is a number of substances which are to the average person not irritants at all in any ordinary dosage. Yet there are individuals who react very violently to these bodies in doses which are so small that dosage may be said generally to be unimportant. As a good instance of this one may take iodoform. Most people can handle iodoform without evil result, yet there are people in whom contact with a small crystal will call forth the most intense inflammatory eruption, sometimes eczematous in type and sometimes so bullous that I have seen it mistaken for pemphigus. Such people may be said to have an idiosyncrasy to the agency in question.

So far I have followed the teaching of Jadassohn pretty closely, but I would now point out that although this classification into special and general susceptibility and idiosyncrasy has elements of truth in it sufficient to make it of practical use, yet too much weight must not be laid on it or it will break down. One of the points of difference laid down between susceptibility and idiosyncrasy is the fact that in idiosyncrasy the agency does not affect the average person at all, and a second is that dosage is hardly important, as I have already stated. But if we take a number of the agencies in connexion with which an idiosyncrasy is assumed we can build up a pyramid of which the base will be formed of those to which idiosyncrasy is common and the apex of those to which it is rare. Again, if we take an individual whose susceptibility has been artificially raised by frequent exposure we may find that dosage is practically as small as that in idiosyncrasy. We may therefore trace an almost continuous series between susceptibility and idiosyncrasy. It will, perhaps, be well to give instances relating to these points.

First as regards the relative frequency of idiosyncrasy to any one poison. As example I would quote the poison of *Rhus toxicodendron* (American "Poison ivy"), and that of *Primula obconica*. Both of these plants cause irritant dermatitis in so large a number of people, though in what proportion of the population I cannot say, that they are well known as general causes of eczema.

Nevertheless, where insusceptibility exists it seems to be almost absolute, and I have a clear instance of this in a distinguished horticulturist who suffered severely from eczema chiefly of internal origin. This patient told me that, though a martyr to eczema in some ways, he could handle both *Rhus toxicodendron* and *Primula obconica* with impunity.

Secondly as regards the minute dosage required with common irritants in a sensitised patient. Formic aldehyde is a good example of a common irritant, and I know of one patient who after several attacks became so sensitive that if he went into a well-ventilated room in which the chemical had been used some hours before he broke out in an eczematous rash in a few hours.

There is perhaps this point of difference between the two varieties—namely, the condition of the general health and the skin in relationship to outbreaks. I have already pointed out that Jacquet and Jourdanet have found the constitutional condition to have a very distinct influence on professional dermatitis, and I have also mentioned that the horticultural amateur, though actually a sufferer from eczema, found that the idiosyncratic poisons had no influence on the eruption.

In this matter of idiosyncrasy the efficient cause may be sufficiently obvious, or, on the other hand, may be extremely elusive. Even with the well-known causes the inexpert may be deceived, as patients often mislead unintentionally in the narration of their histories owing to preconceived ideas as to the ætiology of their trouble.

The following is a good instance of this type of history.

A lady was sent to me suffering from severe eczema of the arms, face, and chest of about eight months' duration. Her history was that she was greatly depressed in health partly from financial worry and partly from overwork in the management of her home. Shortly before the outbreak of her first attack she had moved into another house. This, of course, entailed an enormous amount of work, as she did much of the cleaning of the new abode herself. The scrubbing and labour tired her out and made her feel more ill than before, and this culminated in her breaking down with an acute attack of eczema from which she had never quite recovered. Such was the history that she gave me when she came into my room.

On careful examination I came to the conclusion that we had to do with an eczema of external origin. I therefore questioned her as to the plants in the garden, and was informed that there was only some lilacs and ferns. I therefore directed my attention to wall-papers, carpets, and furniture, but drew blank in every direction. I then suddenly remembered that under the heading of plants I had not specifically mentioned climbers, so I harked back to this. I then learned that there was a "sort of virginia creeper" on the house. It was then winter and the plant was leafless, but I got the patient to send up a branch to Kew for identification, and to my satisfaction the report came back—*Rhus toxicodendron*. This plant, though very well known as a common weed in the United States, is so uncommon in England that people are ignorant of its evil properties. I have only come across two cases of poisoning by it in England, though I believe there is a fair number of plants scattered over the country under the name of *Ampelopsis Hoggii*. At all events, when the cause was once elucidated, the eruption was immediately seen to have a very obvious ætiology, the climber was destroyed, and no further attacks occurred.

Such cases seem simple enough when the ætiology is once elucidated, but much time and trouble is needed in many cases before the offending poison is identified. One point which causes difficulty is the almost incredibly small dose of the idiosyncratic poison which is necessary to produce severe symptoms. It must be remembered, also, that although there is a large number of bodies the qualities of which are well established, there are almost certainly many others which still remain undetected. It is scarcely to be wondered at, therefore, that on occasions the presence of an external intoxication cannot be established, although it may be suspected. As examples of the minute dosage required I may, perhaps, quote two cases.

The first is that of a child, reported by the late Prof. James White[4] in his book on dermatitis venenata. This child, aged 6 years, was twice poisoned one summer with *Rhus toxicodendron*. Consequently the next year a boy who was known to be insusceptible was employed to tear up all the plants growing near the house. This boy was then made to wash his hands, first in hot water with soap and subsequently with vinegar. As a precaution, in spite of his supposed insusceptibility, he was watched during this process by the mother of the susceptible child. In the afternoon this boy took the susceptible child to a pond to bathe. Having stripped him he took him into the water, holding him by the armpits and afterwards rubbing his back with his open palms. Two or three days later the child was taken ill and grew rapidly worse. Deep ulcers appeared under the armpits and the skin of his back exhibited in an aggravated form the usual marks of poisoning by "ivy." He died at the end of the third week of his illness.

The second case to which I will allude is that published by Dr Arthur Hall[5] some years ago.

The patient was demonstrator in a chemical laboratory. In July, 1894, he began to suffer slightly from eczema on his fingers. This disappeared on his vacation, but reappeared on his return in September. He was at this time engaged in a research necessitating the use of phenylhydrazin and benzaldehyde. He gave this up for a time, but at Easter, 1895, he returned to it, and during one of his experiments noticed that a good deal of vapour was given off. The same evening he developed an attack of acute eczema on the face, neck, ears, and scrotum. This slowly died away. On repeating his experiments he developed a fresh attack. In December, 1895, he upset some phenylhydrazin on his hand, and in two hours developed widespread attack. He then gave up experimenting with phenylhydrazin. He was free from December, 1895, to November, 1896, and then had a fresh attack and found that a student was using the chemical in the laboratory.

He was again free until July, 1898, when he got an assistant to do some experiments with it in a room not directly connected with the laboratory. The assistant came and talked with him for a few minutes and another attack resulted. Finally, while convalescing at home from this attack his assistant came to talk with him after walking a mile through the open air, and he immediately developed a relapse.

I now quote a case of the elusive variety.

A lady was sent to me for recurrent attacks of eczema of the hands and face. Her story was that she had fair health, but was very "gouty," and about a year previously had had an attack of "gouty eczema." This had been somewhat resistant, so she was sent to Harrogate where she was cured rapidly. A recurrence took place, and again she was cured at Harrogate. Since then more recurrences had taken place at short intervals. The type of eruption suggested to me an eczema due to external toxin. Close questioning revealed the fact that while on a visit to friends in London the patient was free from trouble, and that on any visit away from home she was also free. This she explained by the rather relaxing climate where her country house was situated. I then inquired for plants, furniture, wall papers, &c.,

and finding that she had a large home farm and dairy, made inquiry as to these. This accidentally put me on the track. The patient had a breed of cows that had very handsome skins, and when any were killed she had the pelts made up into drawing-room rugs. This struck me as so unusual that I turned my attention to these rugs. I then elicited the statement that one of the servants, though not suffering from eczema, remarked that her hands "tickled" after handling the pelts. I therefore suggested that they should be removed and that a part of one should be submitted for analysis to an expert chemist, to whom I made suggestions as to chromium or zinc salts or arsenic. The chemist found nothing suspicious, but the patient had no more attacks for about two years. Her later history is interesting; about two years later I had a letter from her husband saying that after a long period of freedom she had relapsed. He had at once suspected a new source of poisoning, and had found out that she had been knitting a slate-blue wool for soldiers, and that the housekeeper who also knitted this wool complained that it tickled her hands. It was therefore removed and freedom from eczema again resulted. The actual substance was never detected in either case, but the patient was cured and I think I may say with confidence has remained so since.

One further instance I may give of this chemical poisoning.

The wife of a medical man was sent to me for eczema of the face and neck. Suspecting an external cause I made the usual inquiries, but drew blank in every case. I therefore treated it locally and set to work to look for internal causes. In this search the urine and fæces were exhaustively examined, and a bacteriological examination of the fæcal flora was made. Under the local treatment considerable improvement was made, but relapse was frequent and the condition on the whole became worse. After submitting to my failures for some time the patient went to a dermatological friend of mine. He went through the same interrogation and also drew blank. He treated her very successfully with mild doses of X rays in order to subdue the sensibility. Nevertheless although improved she was not free from trouble. Then on one of her visits he noticed a slight change of colour in the hair, and on being taxed she admitted that she dyed her hair, a thing which she had previously denied doing to both of us. It was dyed so lightly that it certainly did not suggest artificial colouring, and when I saw her she had a common shade of brown turning grey here and there. On the day it was detected I suppose she had used a little more than usual, but, of course, I did not see her then. It is not, as a rule, difficult to detect dyeing of the hair when one is examining the patient at close range, but this case illustrates well how by clever artifice and stout denial one may be led away even when one begins with a confident belief in the chemical origin of the eruption.

These are examples of purely local poisoning of the skin, and it will be noticed that in one case the patient had been considered "gouty," and it was believed that the Harrogate treatment had effected a cure, while in another I was myself deceived by the statements of the patient into a tedious search for metabolic errors.

LOCAL PARASITIC DISEASES MAY SIMULATE INTERNAL DISEASE.

I now turn to some other forms of local damage which have given rise to confusion. In 1892 Djellaludin Mouktar,[6] working in Prof. Fournier's clinic in Paris, showed some cases of circinate dermatitis of the sole of the foot. In these cases he found present a ringworm fungus. Being under the influence of the Paris school he attributed these cases to a secondary invasion of an eczema of unknown cause by the ringworm fungus. These cases were reported only briefly in the Transactions of the Paris Dermatological Society and—being published before I was working seriously at dermatology—were unknown to me.

Some time later I began an exhaustive microscopic study of the scales, fluid, pus, &c., which I was able to collect in cases of eczematous dermatitis. The result of these investigations was that in 1908[7] I was able to publish a series of cases of eczematoid eruptions on the hands and feet in which I had found a ringworm fungus present, but had been unable to cultivate it on account of overgrowth of contaminating organisms. However, I described as accurately as I could the type of lesion present, pointing out some peculiarities that I thought might enable one to suspect the presence of a fungous infection, at the same time contending that it was not justifiable to make the diagnosis of vesicular eczema of the hands or feet without microscopical examination. More than one of my early cases had been diagnosed as, and treated for, "gouty eczema."

In 1910 Sabouraud[8] observed the same set of clinical symptoms on the feet associated with the disease called eczema marginatum, and already known to be due to a fungous infection. Sabouraud succeeded in cultivating the fungus and found it to be the peculiar organism of Dhobi itch, which he had already named the "Epidermophyton inguinale." Unaware of my paper on the subject, he described the disease accurately and also, as I had done, protested against the diagnosis of vesicular eczema and dysidrosis without microscopical examination. Sabouraud in his paper stated that he was acquainted with Djellaludin Mouktar's cases, and that they were not epidermophyton infection. There is also a model in the Saint Louis Museum of one of these, and I do not think it is the same disease as that to which I drew attention.

This disease has several points of interest. In the first place it is, I think, the only case of an infective disease with which I am acquainted which is so much more common in the well-to-do that it may almost be said to be limited to them. This peculiarity has been noted by more than one observer, and is probably the reason for my being able to collect only so few cases in the earlier days of my private practice, since the hospital clinics did not provide me with the necessary material. I have given a good deal of thought to this peculiarity with a view to discovering the reason. It is of course well known that in India the disease is called dhobi or washerman's itch, on the theory that the underclothes are infected by the washerman, though I may point out in passing that the eczematoid ringworm of the feet was not apparently recognised there. This "washerman" theory has met with some antagonism among medical observers; nevertheless I believe it to be the correct explanation in some cases. The well-to-do are at least as clean as the poorer classes, but in most cases they send their underclothes to be washed at a common laundry, whereas the poorer classes generally do their washing at home. That washing will carry the infection is proved by one of my cases, since the maid who washed at home some socks worn by the patient became infected on the hands. No other explanation of the apparent immunity enjoyed by the poor has presented itself to me.

Some of my patients believe that they caught the disease at Turkish baths, and as evidence in favour of this view I may state that I have found the fungus present in the feet of a Turkish bath attendant.

In the second place, there are other phases of the disease which are of interest in connexion with general medicine. The disease may begin extremely acutely with a vesico-bullous eruption and great swelling so that the patient presents the appearance of an acute toxic dermatitis. In this stage it is usually fairly easily curable by appropriate measures, since almost the whole of the stout horny layer is shed en masse and one has only a thin layer to deal with below. If, however, it is not diagnosed but merely treated with soothing applications, the inflammation will slowly subside, and the fresh horny layer will be infected in turn. In other cases the disease may begin quite insidiously with a little scaling, vesiculation, and pustulation between the toes, and this may persist untreated and even unknown for a number of years. It is usually mistaken for a disorder of constitutional origin and labelled "gouty eczema." Slight or severe exacerbations occur in hot damp weather and on severe exercise which induces sweating.

One very important point is that the stripping up of the horny layer and the vesiculation lead to a secondary infection with the pyogenic organisms, especially the streptococcus. This results in persistent fissures between one or more pairs of toes, and from these fissures the infection spreads from time to time

up the lymphatics, causing redness and swelling of the leg accompanied by fever. One of my patients developed slowly a chronic elephantoid thickening of the ankle and calf in this way. She was treated for gout on many occasions and visited many watering places, including Homburg, on this supposition, and curiously enough the infection was for some years limited to the right foot. Dr. H. G. Adamson permits me to mention a somewhat similar case under his care, who was for some time in a nursing home in London, and was treated for recurrent gout by a great authority on that disease.

Another case under my care was that of a medical man who developed the disease in its insidious form in one of the Eastern campaigns of the late war, and suffered from a severe relapsing lymphangitis like, and nearly identical with, erysipelas. He was sent on to me, and I found and demonstrated to him the fungus from between his toes, though, as far as my memory goes, he was unaware of anything wrong there. This was some time ago, and I have heard from him since that his feet have entirely cleared up, and that he has been free from all further lymphangitic trouble.

A still more striking case, but of an allied rather than of an identical nature, is that of a male of late middle age who was seriously thinking of undergoing amputation above the knee. This patient damaged his knee in early life and the affection was considered by some surgeons to be tuberculous in nature, by others merely a traumatic arthritis. It cleared up under treatment and he was well for many years. He then began to have recurrent swelling of the leg with sudden attacks of fever up to 105°F. Difference of opinion occurred again and he saw several experts. On analysis of his symptoms I came to the conclusion that the swelling, which was not present when I saw him, was rather in the soft parts round his knee and below it than in the joint itself. I measured his legs and found some slight general thickening of the whole leg below the knee. I then examined his toes, and found a solitary streptococcic fissure beneath the fourth, but could find no fungus present. I therefore treated this and had the satisfaction of hearing from him much later that no further attacks had occurred.

I have dealt with this disease at some length because it appears to me to be so very important, and it is really far from uncommon. As far as I can make out, it became really common in England soon after the Boer War, when it was probably spread by the officers of the Indian Army. It became epidemic in some of the English public schools and was at one time present in one of the large London hospitals, where apparently the baths became the source of infection. The troops in Gallipoli suffered from it almost universally, and the few cases that I have seen in hospital practice have been in soldiers. A disease of this frequency which may be mistaken for gout, neuritis, and tuberculosis by physicians and surgeons respectively must surely be of some general interest!

In concluding this lecture I may confess that I was at one time greatly under the domination of the external factor; and although with increased experience and research I have in some degree altered my position, I am still of opinion that it is only by working patiently through the evidence to be gained by a study of the external and usually more direct factors that one can attain to the degree of knowledge and technique which will enable one to begin to study satisfactorily the internal ætiological factors. For this reason I cannot deprecate too strongly the statement which I have observed in a modern text-book that it is a waste of time to hunt for the acarus in scabies. By constant practice it is quite easy to gain a degree of proficiency which will enable one to extract an acarus in considerably less than one minute. Unless one cultivates the more difficult processes of observation and manipulation one has never the right to give a certificate that such diseases as scabies and ringworm are cured.

References.

1. Jacquet and Jourdanet: Ann. de Derm. et Syph., 1911, ii., p. 11.
2. Whitfield: Brit. Jour. Derm., 1917, xxix., p. 267.
3. Jadassohn: Deutsche Klinik, 1902, x., p. 117.
4. White: Dermatitis Venenata, Boston, 1887, p. 43.
5. Hall: Brit. Jour. Derm., 1899, xi., p. 112.
6. Djellaludin Mouktar: Ann. de Derm. et Syph., 1892, iii., pp. 152, 651, 855.
7. Whitfield, A.: THE LANCET, 1908, ii., 237.
8. Sabouraud: Ann. de Derm. et Syph., 1910, i., p. 289.

THE CAPILLARY PRESSURE AND THE CIRCULATION IN SHOCK.

BY LEONARD HILL, M.B. LOND., F.R.S.,
AND
JAMES McQUEEN, M.D. ABERD.

THERE is no evidence that the capillary wall acts as a soap film and exerts surface tension. Against such a supposition is the fact that the capillaries in the web of the frog's foot do not empty when the foot is amputated. The method, then, adopted by L. Hill[1] of measuring arteriole, capillary, and venule blood pressure is the finding of that amount of compression which, when quickly applied, momentarily arrests the flow. When the compression is gradually raised and kept raised time is allowed for the arterioles to become distended by the pressure of the blood within the artery which is feeding the compressed arteriole, and thus it comes about that the lateral pressure in this artery is measured on blocking and keeping blocked the flow in a capillary field. For example, in the case of the frog's web the pressure in the main artery of the toe is measured, not that in the normally flowing arterioles or capilleries, and in place of a pressure of some 3–5 mm. Hg, which, when quickly applied, momentarily arrests the flow, a pressure of some 25 mm. of Hg is found.

The momentary check occurs when both the kinetic energy and the potential energy of the blood stream are overpassed, for when the flow is momentarily arrested it is equivalent to the sudden damming of the blood flow by the interposition of an impermeable diaphragm across the bore of the vessel; the flow being arrested, its kinetic energy is converted instantaneously into potential energy, and the hypothetical diaphragm is pressed upon by a raised lateral pressure which results from the transformation of the kinetic energy. Similarly, when L. Hill and J. McQueen[2] used a jet of water to play upon the skin behind the finger-nail, and moving it to and fro found the blanching pressure, the blood current being arrested when the pressure of the jet was made high enough, the normal lateral pressure plus the lateral pressure due to conversion of the kinetic energy of the flow was measured. Consequently the accurate measurement of arteriole-capillary pressure measures the total energy, potential and kinetic, of the blood stream.

Now if the force and rate of the heart beat and the calibre of the arterioles, capillaries, and venules be constant, any diminished rate of capillary flow brought about by increased viscosity means a higher lateral pressure. Neglecting that fraction of energy which is dissipated as heat, the diminished rate of flow means less of the total sum of energy expressed as kinetic and more of the total sum of energy expressed as potential or lateral. Similarly, if the capillary flow be quickened through diminished viscosity, the increased rate of flow means a conversion of some of the potential energy fraction. In the first case the lateral pressure rises and the kinetic pressure falls. In the second case the lateral pressure falls while the kinetic rises. When, then, the viscosity of the blood is increased an additional supply of kinetic energy is required to be transmitted from the heart to secure the adequate flow of blood in the capillaries, for as the total lateral pressure and kinetic energy of the arteriole-capillary blood stream is measurable by a very few millimetres of Hg, the kinetic fraction is very small, and it is this very small kinetic energy fraction that is of fundamental importance.

Normally the loss of pressure of the blood in traversing a capillary area is very small. L. Hill found a very small pressure was required to propel the blood along the capillaries in the web of the amputated foot of the frog. The kinetic energy of flow in the capillaries naturally is correlated exactly to the frictional resistance of the blood inside the capillary. In normal conditions both the kinetic energy of flow and the frictional resistance due to viscosity are very

small. Any increase of viscosity has, therefore, a very great slowing effect on the blood current because the kinetic pressure of blood flow is at most a very few millimetres of Hg. In normal conditions of health the body maintains the viscosity just as constant as it does the osmotic pressure or the hydrogen-ion concentration of the blood.

The fact that the total pressure in the capillary field is small is an example of the economy of the body. A uniformly high capillary pressure, such as hitherto accepted—viz., 30 mm. Hg, would mean a corresponding high output of energy from the heart, and this energy would to a large extent be wasted: the most economical way of distributing energy is the method adopted in the body. Energy is supplied where energy is required. By vaso-dilation kinetic energy of blood flow is supplied when the chemical needs of the organ or tissue require it, but be it noted in the body that extra kinetic energy is compensated by less waste of energy where it is not required in areas where compensatory vaso-constriction ensues. Thus changes in the kinetic energy of blood can be secured in certain areas of the body without the heart ever being called upon to supply energy much over its normal amount. For example, when muscular exercise is not undertaken, digestion, absorption, and excretion may make remarkable demands for increased blood flow in large capillary areas with little or no change in the general level of arterial pressure in the main trunks and with quite small changes in the rate and force of the heart. The arterial pressure in the main trunks is utilised where required without any great demand for increased cardiac action. In muscular exercise it is true the heart's rate and force are increased, but such muscular exercise, where systolic and diastolic pressures are much raised, is never maintained over long periods.

Much study has been devoted in man to the recording in health and disease of diastolic and systolic pressures in main arterial trunks. It has been maintained, and no doubt truly, that little material of great clinical value has been obtained from that study. It is true that in those in whom the arteries or kidneys are diseased high systolic and diastolic pressures are often demonstrated. But to expect that clinical information can be obtained from small variations of blood pressure (arterial) is to ignore the meaning of arterial pressure. The arterial pressure exists solely for the maintainance of an adequate capillary rate of flow. Consequently even in cases of abnormally high blood pressure it is safe to say that some essential capillary field demands that height of blood pressure to secure an adequate rate of blood flow. We have no evidence whatever that capillary blood pressure (kinetic factor) is increased in cases of high arterial blood pressure, and if that be proved true by the application of the more accurate method of capillary blood pressure measurement now available, it is safe to conjecture that, if the arteriole conditions remain constant, any great drop of pressure in a person suffering from arterial hypertension will have disastrous results. Stewart records in arterio-sclerosis a diminished rate of flow in the hands.

Similarly, in cases of low arterial blood pressure where the individuals show no symptoms it is certain that the arteriole conditions permit of a quite adequate capillary rate of flow, and to artificially raise the level of general arterial blood pressure, if that were therapeutically possible, would be a work of supererogation. Consequently clinical writers who record arterial systolic and diastolic pressures in disease present only one factor in the problem. It is safe to say that the rate of capillary blood flow in correlation to the arterial systolic and diastolic pressure should be our guide to treatment. The capillary rate of blood flow has a critical value below which it must not fall. That rate in normal individuals is the optimum rate, and it will be found that the body strives even at the expense of a higher arterial blood pressure level to maintain the optimum rate, which may have to be greater, for example, in renal disease. If an extra drain is made on the energy of the heart to maintain that capillary rate of flow, there is to that extent a loss of reserve power in the heart. If the arterioles are maintained highly constricted uniformly all over the body an increased force of the heart beat is necessary to maintain the optimum rate of capillary blood flow; and such general vaso-constriction prevents the mobility of the vaso-motor reflexes, and the power of opening the sluice gates in the high pressure arterial system is to that extent impaired. The data of systolic and diastolic pressures in the main arteries so laboriously compiled is then information of little or no clinical value. But it requires to be illuminated and brought into line with the law of an optimum rate of capillary flow.

In the life of the normal individual no falls of any consequence in the level of the arterial blood pressure ever occurs. In fainting, no doubt, a fall occurs, but anæmia of the medulla speedily restores the level of blood pressure, and it is aided, no doubt, by the assumption of the horizontal posture which unconsciousness generally secures. There is evidently a critical level of arterial blood pressure below which it must not go for long periods, and that critical level is determined by the rate of blood flow through the capillaries of the cardiac muscle. Thus, Starling[3] has found that the arterial blood pressure, if it falls below 80 mm. results in a diminished output of energy by the heart muscle itself. If the rate of flow in the capillaries of the heart falls below the level required for the supply of energy of the heart muscle, it is to be expected that grave results will ensue. Such is the case in shock.

The existence of a critical level of systolic pressure in the arterial trunks is the price paid for the maintenance of arterial tone. The fact that the normal capillary pressure (potential and kinetic) is expressible in a few millimetres of Hg while the arterial pressure in the brachial artery may be 130 mm. of Hg, is due to the arterial tone. Pressures are cut down enormously in the small arteries and arterioles, and if they were not so cut down by the tone of the wall keeping narrow the lumen the great alterations in the kinetic energy of the blood streams that are necessary in the periods of activity of tissue or organ would not be obtained without as great alterations in the rate and force of the heart beat. It is this banking up of pressure between the heart and the arteriole which makes of the great arterial trunks a reservoir at high pressure capable of having its sluices opened here and shut there according to the needs of the territory to be irrigated. But the price of the arterial tone has to be paid, and its payment is expressed in the law of the critical blood pressure level. If the arterial blood pressure fall for long periods much below that critical level the rate of capillary flow falls much below the normal. The reason for this is obvious. Attempt at compensation is made by increased vaso-constriction, and while by this means succour is brought by increased pressure in the coronary arteries to the heart muscle and to the brain the capillary field in the body generally outside these areas falls from its already low level of a few millimetres of blood pressure still lower. Vaso-constriction is no cure for an arteriole blood pressure below the critical value. The failure of adrenalin or pituitrin in cases of blood pressure below the critical value is exactly what one should expect.

Fraser and Corvell[4] define a group of cases with primary shock as having a systolic pressure of 40 to 90 mm. Hg; in some of the shock cases they record systolic pressures even as low as 30 mm. Hg. It is to be noted that in these cases the arterial pressure in the main arteries is maintained at these low levels by means of vaso-constriction of the arterioles. This vaso-constriction leads inevitably to a very considerable diminution of the kinetic energy of capillary blood flow. Now the accurate measurement of capillary blood pressure in normal individuals with arterial systolic pressure of 130 mm. Hg shows clearly that the total pressure (lateral and kinetic) in the capillaries is at best a fraction of 10 millimetres of Hg

when the normal tone of the arterioles is present. Accordingly it will be obvious that if arterial blood pressures (systolic) fall into a group of 40–90 mm. of Hg and the diastolic pressures are proportionately lower, the total capillary pressure in the capillary areas of the body falls even below its normal exceptionally small level. Consequently the kinetic fraction of the total blood pressure falls still lower, till the blood current in the capillaries must of necessity be extremely slow. Direct observation of the pressure and flow in capillary areas made by L. Hill show that this is so in the state of shock.

In the older estimations of capillary blood pressure as varying from 30–50 mm. of Hg there might have been some possibility of loss of pressure and yet the existence of a remainder of pressure adequate to maintain a capillary flow of rapidity sufficient to supply the tissues with oxygen. In the newer view of the capillary pressure there is little margin available. Hence capillary stasis appears inevitable with its consequences.

Several years ago L. Hill[5] demonstrated the fact that the capillary channels in the body were never all filled. If an armlet be placed on the upper arm and pressure applied just below the systolic level the large veins of the arm below the armlet will rapidly rise to the systolic level of pressure pertaining in the brachial artery while the capillary pressure is still much lower than systolic pressure. Hill deduced from this experiment that (1) the capillaries that have blood in them are capable of taking up much more blood by dilatation; (2) there are numerous capillaries in the body not filled at all; (3) there are anastomotic channels whereby pressure is easily and quickly transmitted between small arteries and the veins.

All of these conclusions have been amply proved. Bayliss found that after section of the spinal cord large volumes of gum saline solutions could be injected and remain in the vessels with persistent dilution of the hæmoglobin, evidently here capillaries distend and formerly closed capillary channels open. The capillary field becomes a huge reservoir of diluted blood. L. Hill finds that direct anastomotic paths between small arteries and veins are visible on examination of capillary fields. Now, it has been repeatedly noted in cases of shock that the red blood cells in venous blood taken from the arm often numbered 2,000,000 corpuscles fewer per c.mm. than in blood taken from the capillaries. In the old view of the circulation of the blood passing by way of arterioles through capillaries into venules and veins it is obvious that the venous counts and capillary counts should agree closely. But if, as L. Hill has long maintained, and now shown by examination of capillary fields under the microscope, there are these short and direct paths between arteries and veins, we should expect that the high red-cell count pertaining in these capillary areas in which there is slow flow or stasis would not obtain in the direct paths through which arterial blood flows with its lower red-cell concentration, hence the venous counts would be uniformly lower than the capillary counts. It is noted that as shock diminishes the capillary and venous red-cell counts approximate in value. In normal individuals greater differences than 3 per cent. between capillary and venous counts did not exist. It is obvious here that in these anastomotic paths we have the factor on which depends the possibility of restoring stagnant blood in the capillary area into circulation. If no such anastomotic paths existed the slowing of the blood current in the capillary area would uniformly lead to concentration so great that little or no blood would be in circulation at all.

Surgical shock would kill with an effect and rapidity similar to anaphylaxis in the guinea-pig; or injection of histamine in the etherised cat, when the blood in the capillaries and veins ceases to flow, as can be observed under the microscope. In surgical shock blood slowly concentrates in the capillary area and the return blood to the heart is a mixture of blood of more normal concentration passing by the direct anastomotic channels and concentrated blood returned from the capillaries to the veins. The phenomena of shock supervene gradually and the removal of shock is equally gradual; viscosity of the blood in the capillaries may be overcome by dilution with other blood (donors), or gum saline mixtures and the pressure in the arterial tree raised through the injection; both factors tend to remove the stagnation. The blood diluted with donor's blood or gum-saline has the easy path of return to the heart via anastomotic channels, and is not compelled, all of it, to force its way through capillaries that are already choked with concentrated blood. The approximation of venous red-cell and capillary red-cell counts is correctly interpreted as proof of the removal of stasis. But if there were not in existence these freer anastomotic paths it is extremely doubtful if such revomal of stasis could take place. The primary cause of the capillary stasis is the fall of the arterial blood pressure below the critical level of 80 mm. of Hg or so, and the fact that the fall is not temporary as in the case of fainting. Whether in shock the products absorbed from damaged tissues or the sensory stimulation preceding it is the cause of this prolonged fall in the arterial blood pressure below the critical level we cannot judge on the available data. However, the fact that with a normal arterial systolic pressure of 130 mm. of Hg the kinetic energy of capillary blood flow is but a fraction of a few millimetres means that this fraction becomes less with a falling blood pressure, and may be still less with a general vaso-constriction in the arteriole area. The general capillary field is sacrificed to the arterial pressure in the brain and in the heart, and a sure Nemesis awaits that method of restoring blood pressure if carried too far. Deoxygenation sets in the capillary area, the osmotic pressure of the tissue cells rises and these imbibe more fluid, the capillary wall may suffer and become increasingly permeable. The viscosity of the concentrated blood increases. The kinetic pressure available in the capillary area, already a small fraction of a few millimetres of Hg is inadequate to maintain the blood flow, and the heart, so carefully shielded from oxygen want by vaso-constriction elsewhere, finds itself with progressively less and less blood to propel.

The value of gum saline solutions or of normal blood from a donor is obviously due to the fact that the heart is fed directly from the vein into which the solution is run. The pressure rising in the main arterial system is transmitted to the capillary area, but the gum saline with its viscosity equal to normal blood, or the donor's normal blood, dilutes the concentrated blood in the capillary area, restores it to a more normal viscosity, reoxygenises the tissue cells and the capillary wall and prevents the increasing loss of fluid by imbibition and permeation.

In shock when the blood pressure falls below 80 mm. Hg it is possible, as pointed out by MacLeod, that the reciprocal innervation by means of which vaso-constriction in one area is compensated by vaso-dilatation in another acts in a faulty manner. It is possible that a profound general vaso-dilatation occurs in the initial stages, but such vaso-dilatation, while it lowers the general level of arterial blood pressure, might not decrease the kinetic energy of the blood flow in the capillaries. But when arterial vaso-constriction sets in later, and blood is trapped in distended capillaries, and capillaries open that formerly were shut, then the kinetic energy of the capillary flow becomes quite insufficient to propel the blood.

The accurate measurement of capillary blood pressure then throws light on stasis. Low arterial blood pressures are dangerous because the capillary kinetic energy of blood flow is very small with normal arterial blood pressure. There is a very small margin of safety in the capillary area.

References.—1. Hill, L.: Proc. Physiol. Soc., Dec. 18th, 1920; Jour. Physiol., liv. 2. Hill, L., and McQueen, J.: Brit. Jour. Exp. Path., 1921, ii., 1. 3. Starling, E. H.: Jour. Physiol., 1912, xliv., 206. 4. Fraser and Corvell: Rep. Spec. Investig. Comm. Surg. Shock, Med. Res. Council, 1917–18. 5. Hill, L.: Further Advances in Physiology, Arnold, 1909, 143.

DIAGNOSIS AND TREATMENT OF DIPHTHERIA.

BY FREDERIC H. THOMSON, M.B., C.M. ABERD., D.P.H.,

MEDICAL SUPERINTENDENT, NORTH-EASTERN HOSPITAL, LONDON, N.

IT is quite unnecessary for me to go into the diagnosis of diphtheria in detail, but perhaps there are a few points to which I might draw attention, particularly with the view of early treatment of severe cases. Diphtheria may evince itself in a varying degree of reddening of the tonsil or tonsils and fauces without any deposit, either pultaceous or membranous; as a definite membranous or pultaceous deposit with an amount of inflammation and œdema corresponding more or less to the amount of deposit; as an ulcer or ulcers caused by mixed infection with membrane or pultaceous deposit; or as a most pronounced inflammation and œdema of the fauces with or without a membranous or pultaceous deposit. That may be taken as a very general description of what may be met with in the first day or two of the disease. The very mild attack, productive of inflammation but no deposit, does occur, as we know, by circumstantial and bacteriological evidence, but in a given case we cannot say for certain that the condition is diphtheria.

Usual Form Observed.

Diphtheria usually shows as a membranous or pultaceous deposit (in all pultaceous at first, but usually rapidly becoming an adherent membrane), which looks as if it had been stuck on the mucous membrane, and therefore showing a definitely raised margin. It is ordinarily accompanied by an amount of inflammation and œdema corresponding to the extent of the lesion or lesions, glandular swelling, &c. In some cases the deposit remains pultaceous for as long as a day or two days, and in rare instances never becomes an adherent membrane. Naturally the deposit sometimes occurs in an old ulcer of the tonsil, and may look like an ulcero-membranous condition.

Mixed diphtheria infections are usually due to the added action of septic microbes, the pneumococcus, or the organisms of Vincent's angina, and it is in this class that diagnosis is often difficult, for an apparent ulcerative tonsillitis may be followed by diphtheria; or more frequently the septic condition follows, and doubtless in some the attack may be coincident. I have seen apparent subacute ulcerative tonsillitis go on a couple of days or so, with failure to demonstrate the diphtheria bacillus, followed by the formation of membrane and the presence of the bacillus, and, indeed, one may get any variant. In mixed infections the membrane may not be wholly in the ulcerated area, and I think it is commonly partly out, when the membrane beyond the area will be on the surface and show its raised margin. The deposit may, of course, be pultaceous, just as in pure diphtheria, but the amount of inflammation and œdema is often greater, except in the combination of diphtheria and Vincent's angina.

Features of the Disease in Susceptible Persons.

In those who are peculiarly susceptible to diphtheria the progress of the attack from the time of onset is very marked, and the striking features of this class of case are the rapidly increasing faucial œdema, the rapid swelling of the neck glands, and the increasingly marked accompanying cellulitis. It is this class of case I purpose dealing with more fully later.

Hæmorrhagic diphtheria is a result of toxin circulation produced on a susceptible person, and may be the outcome of a severe attack of pure diphtheria or a severe mixed diphtheria infection, and occurs commonly in the very severe type I have just mentioned, provided, of course, that the disease has not been checked by treatment at a sufficiently early stage. In the diagnosis of an ordinary case of membranous diphtheria I only wish to call attention to a statement in a paper on the clinical diagnosis of diphtheria by Dr. H. Drinkwater, published in THE LANCET of May 29th, 1920. He says that in a given case of membranous deposit on the fauces, in the period of growth if it is raised above the level of the mucous membrane, has sharply defined edges, and is single in each affected area as described by him, "there can be no doubt that the disease is either diphtheria or Vincent's angina." If Dr. Drinkwater had not used the words "no doubt" I would be in agreement, but my experience does not permit me to go further than to say that in the great majority of cases the disease would then be either diphtheria or Vincent's angina. But Dr. Drinkwater goes further still and asserts that neither in diphtheria nor in Vincent's angina in the period of growth do we see more than one patch in any one of these six faucial areas. I do not think any experienced observer will agree with him in this, and I have certainly often seen diphtheria commence with multiple lesions on a tonsil, and some of them severe attacks.

Necessity and Difficulty of Prompt Diagnosis.

The peculiarly susceptible individual who develops rapidly increasing faucial swelling, rapid swelling of the neck glands, with accompanying cellulitis, requires prompt diagnosis and treatment. Usually there will be formation of membrane well within 24 hours and the diagnosis will be easy, but a considerable number will show no membrane at the end of 24 hours, and it may even be postponed for 36 hours, though that is uncommon. It is in these cases with late formation of membrane that difficulty in diagnosis arises. In this class there will, of course, be variation in severity, but the fauces will be full of œdema, the tonsils perhaps meeting or nearly meeting in the middle line, and all within 24 hours. The surface of the tonsils usually has a peculiar filmy and translucent appearance, which looks to me like an almost invisible sheeting composed of the thinnest and finest gossamer. The glands at the angle of the jaw will be much enlarged, the cervical glands to a lesser degree, and the neck will be puffed out by cellular infiltration. This class of case will usually die if left untreated for 36 hours, may even die if adequately treated in 24 hours, and very rarely dies if treated within 24 hours. As this severe form of diphtheria is not at all uncommon it is obvious what a saving of life would occur were early diagnosis always possible. It is sometimes diagnosed as mumps, no doubt on account of the cellulitis, but such a diagnosis means that the throat has not been examined. Also such cases are occasionally regarded as quinsy, but quinsy is not nearly of such rapid development, is not common in young children, and a double coincident quinsy is very rare indeed. In severe diphtheria the patient usually opens the mouth well, though there are exceptions, and the difficulty in opening the mouth is usually so great in quinsy that it may be very hard to get a view of the throat. In quinsy at the end of 24 or 36 hours there will be little, if any, cellulitis of the neck.

Differential Diagnosis.

It is very rare to find concurrent quinsy and diphtheria, but I have seen cases of coincident one-sided quinsy and double-sided diphtheria. The differential diagnosis between quinsy and diphtheria will rarely be difficult, but if there is doubt antitoxin should be administered. In the severest forms of septic sore-throat some difficulty may arise in diagnosis, but there will not be thus early much glandular swelling, nor will there be cellulitis, and I do not think I can do better than go back 40 years to quote a very observant clinician, Sir Morell MacKenzie says in his text-book: "In diphtheria the submaxillary and cervical glands frequently become much swollen at the outset of the disease, but in putrid sore-throat these parts in some cases remain altogether unaffected, whilst in others the tumefaction is but slight."

It may be very difficult to differentiate between very severe attacks of scarlet fever and diphtheria

at this early stage. Such points as the temperature usually being higher, a sudden onset, commoner initial vomiting, &c., in scarlet fever, are best left alone, as also certain points in favour of diphtheria, such as a probable more rapid cellular infiltration or less faucial pain, &c. To differentiate, one must have a well-defined scarlet fever eruption, and it must be well defined, for an erythema is common in diphtheria; but if that is not present there must be difficulty, and since the patient will be obviously suffering from a dangerous infection, there can only be one course of action and that is to treat for diphtheria at once.

To sum up, I consider that a condition of the throat so acute as I have described must be (except very rarely) either diphtheria or scarlet fever, and must be regarded as diphtheria for purposes of treatment unless definite evidence of scarlet fever is present. That treatment must be as early as possible, and delay of treatment for bacteriological examination is to be severely condemned. As I pointed out in a recent communication[1] on the subject, if the clinical evidence favours diphtheria the patient should be treated for that disease at once.

Treatment of Acute Diphtheria.

I would like to touch upon the main points in the treatment of acute diphtheria; apart from suitable nourishment, these are adequate dosage of antitoxin and complete rest in the recumbent position. All other treatment falls into insignificance beside them, and any treatment which interferes with them is bad. We know that within a certain time antitoxin will stop the production of toxin, but we cannot say just how long that time may be; possibly it varies in different individuals and in different degrees of severity. There is evidence which goes to show that antitoxin neutralises or partly neutralises the toxin in circulation, and that larger doses may partly neutralise toxin loosely combined with the cells, but not that which has become fixed. We do not know at all exactly when the toxin commences to be circulated in quantity; we do not know how long it is in circulation or how long it is loosely combined. The deductions appear to be that the earlier one can treat the disease the better, and that if one fails to get the patient early the dosage should be greater; this is in accord with clinical experience.

At one time it was laid down, and, indeed, is still held by some, that the weight of the individual should regulate the dose. This at first sight seems reasonable, but the child is more susceptible to diphtheria than the adult, and the net result is that the child requires as large a dose as the adult. It is true that infants are often insusceptible or less susceptible to diphtheria, but that point can hardly be held to affect the general rule of dosage. The method of administering the antitoxin affects the dosage to some extent, but the main points affecting it are the severity of the attack and the stage of the disease. It is, however, very difficult to estimate the dosage in any given case, and the only safe method appears to be to err purposely on the ample side.

To arrive at the approximate dose one has to be guided by the stage of the disease, the rapidity of progress from the onset of the symptoms, the amount of membrane, the amount of inflammation and œdema, the amount of glandular swelling, the amount of cellular infiltration; whether the naso-pharynx is involved, as indicated by nasal discharge; the character and amount of the nasal discharge, and whether it is blood-stained; whether there is bleeding from the mucous membranes, and to what extent; whether there is hæmorrhage into the skin, and whether there are subcutaneous hæmorrhages; whether the larynx is affected as well, and the throat fœtor. One must not be guided by the amount of membrane alone, as I fear sometimes happens; I have already pointed out that early in the most serious cases there may often be no membrane. Having thus arrived at the probable dosage it is wise in all severe cases to add, say, 4000 units more to cover possible error.

[1] THE LANCET, 1921, i., 1100.

Intramuscular Administration Preferable.

The accepted methods of administration are the subcutaneous, the intramuscular, and intravenous. The intravenous method, while having its advantages, need hardly be considered for routine purposes. J.D.Rolleston advises the intramuscular chiefly because the absorption is more rapid than by the subcutaneous method. In my opinion, also, the intramuscular method is preferable and the injection is best made deeply into the vastus externus. Some inject into the gluteal region, but as Rolleston points out, the thigh muscles are more compact and exercise greater pressure and so help the more rapid absorption of the injected fluid. Further, it is to be remembered that the patient has to lie on the gluteal region and there is no need to add to his discomfort.

Rolleston advises the following dosage: For severe faucial cases: 16,000 to 20,000 units, and a similar or sometimes smaller dose on one or two of the following days. For moderate faucial cases: 8000 to 12,000 units, occasionally repeated on the following day. For mild faucial cases: 4000 to 8000 units, repetition rarely being necessary. For nasal, laryngeal, conjunctival or aural diphtheria in which there is no faucial involvement: 4000 to 12,000 units.

C. B. Ker states that in diphtheria cases are frequently met with in which a single dose of 10,000 units is not enough, and that in not a few cases there is no improvement until the patient has received more than 20,000 units. Further, he says that in severe naso-pharyngeal cases it may be necessary to give 40,000 units or more. I believe that for some mild faucial cases 4000 units is sufficient, but there is the difficulty of gauging the class of case one is dealing with. This can be done with some accuracy by those of much experience, but is very difficult for others. Personally, I would not care to give less than 6000 units, and I would advise all those who are uncertain that the case is really a mild attack never to give less than 8000 units.

It is well to remember we do not know very much about the accurate dosage of antitoxin; but we do know the patient will recover if an adequate dose of antitoxin is given sufficiently early in the disease. I have already mentioned the wonderfully good results obtained by MacCombie amongst patients treated on the first day of the disease; I believe he never gave less than 12,000 units. It is impossible to say what the maximum necessary dosage is in the most severe cases. I have certainly seen cases in which more than 50,000 units seemed necessary. Ideally the amount of antitoxin necessary should be administered in one dose, but it is very difficult to estimate the quantity and so second doses are often required. It is desirable that the second dose should be given not later than 24 hours after the first; repeated doses extending over a few days are not to be recommended.

—	If treated on 1st day	If untreated		
		Until 2nd day	Until 3rd day	Until 4th day or later
Mild faucial ..	6,000	6,000	8,000	10,000
Moderate ,, ..	10,000	12,000	14,000	16,000
Severe ,, ..	20,000	24,000	30,000	30,000
Severe faucial & laryngeal ..				
Very severe faucial ..	30,000	40,000	50,000	50,000
Laryngeal only ..	18,000	18,000	18,000	18,000
Nasal only, but with membrane	6,000	6,000	8,000	10,000
Conjunctival only				

If one has not erred in one's estimate of the severity of the attack, as indicated by a definite increase in symptoms in 12 hours after the injection, many cases will not require more antitoxin. In mild faucial cases second doses will seldom be necessary. In moderate faucial cases some will require second doses of from 8000 to 10,000 units. In severe faucial and

severe faucial and laryngeal second doses of from 12,000 to 16,000 units will be required in a goodly number.

In many very severe faucial cases second doses, usually varying from 16,000 to 20,000 units, will be required, but occasionally it will be advisable to repeat the first-day dose in 24 hours or less if the faucial swelling and cellulitis have increased, and to give a second dose of 20,000 units should there be no improvement by that time. Cases suffering from laryngeal diphtheria with no faucial or nasal involvement seldom require more than the 18,000 units. Nasal diphtheria with membrane but no faucial involvement, and conjunctival diphtheria with no faucial involvement, seldom require a second dose. A discharge from the nose, whether blood-stained or not, in which is found the diphtheria bacillus but no membrane formation, seldom requires antitoxin treatment.

Importance of Recumbent Position.

It is of very great importance that the patient should be in the recumbent position in bed. He should lie flat on his back and unless the disease is mild not even a pillow should be allowed; a mild case may be allowed a soft pillow. The period for which it is necessary to maintain the recumbent position varies greatly with the severity of the attack, but it is wise, except in the mildest forms, to regard the minimum as three weeks, and in very severe cases up to six or even nine weeks. The mildest forms should be recumbent for at least 15 days.

When it is considered safe to move the patient from the flat position the process must be very gradual, the heart being watched with care, and should it be affected by the change return to the recumbent position must be resorted to. In moving the patient from the flat, give only one pillow for a few days, then a second, and so on until the patient may be allowed to lounge in an easy chair at the bedside for half an hour. Even when he is up and about the heart must be watched for some time and the patient put back in the recumbent position if necessary. If this is carried out carefully sudden death in convalescence will occur very rarely indeed.

Some may wonder how one can expect a child to lie flat in bed for weeks, but actually the child suffering from diphtheria will do so readily and almost without exception. With rare exceptions it will be the fault of the nurse, not of the child, if there is difficulty. With the adult, however, difficulty may arise, and considerable persuasion is sometimes necessary. The ordinary case may be carefully moved on his side for changing or blanket bathing, but in a case in which early heart failure is likely the blanket bathing must cease from about the seventh to the fifteenth day, and only those parts sponged which entail no movement of the patient. Every precaution must be taken to avoid unnecessary movement. This complete rest in the recumbent position is laid down as essential by all who are experienced in the disease, and it follows that local treatment of the throat should not be done. It is difficult to depart from a treatment which has been carried out almost from time immemorial, but my experience of local treatment of the throat in infectious diseases is quite unsatisfactory. Even in scarlet fever, whether septic or not, I gave it up some 12 years since, except in the adult, who likes it, and my experience is that in the ordinary case of scarlet fever no difference results, while I think the septic cases on the whole do better, and they certainly do as well. Now in scarlet fever there may be a difference of opinion, but in diphtheria I do not think there should be, for local treatment of the throat must interfere with the complete rest which is essential.

The nursing of diphtheria requires special training, and the requisite nurse is by no means always procurable; indeed, nurses whom one would call capable diphtheria nurses are scarce. Therefore it is necessary for the practitioner when dealing with this disease to tell his nurse not only what to do but also what she must on no account do.

EFFECTS OF HOT AND COLD APPLICATIONS TO THE SURFACE OF THE BODY

ON THE TEMPERATURE OF THE MUSCLES, LIVER, KIDNEYS AND BRAIN.[1]

BY J. J. R. MACLEOD, M.B., CH.B., D.P.H., F.R.C.S.,
PROFESSOR OF PHYSIOLOGY, UNIVERSITY OF TORONTO;
AND
N. B. TAYLOR, M.B., M.R.C.S.ENG., F.R.C.S.E.,
FORMERLY CAPTAIN, C.A.M.C., LECTURER IN PHYSIOLOGY, UNIVERSITY OF TORONTO.

(*From the Laboratory of Physiology, University of Toronto.*)

IN a previous communication[2] it was shown that the application of heat to the surface of the thigh causes, in the rabbit, an immediate rise in temperature, which spreads laterally for about 20 mm. and penetrates into the muscles for about the same distance, when the application is about 10° C. hotter than the skin. On heat being applied to the surface of the abdomen, at a temperature difference of 15° C. and over a broader area (one-fourth of the abdominal surface), temperature changes were observed to a depth of 75 mm., the lateral spread being 20 mm. That the rise in temperature is mainly dependent upon actual conduction of heat through the tissues, and not due to vaso-dilatation, is evidenced by the fact that the temperature attained in the tissue is considerably above that of the blood, which was recorded in all the experiments by placing a second thermo couple in some deep situation in the body some distance from the place of application of the heat.

In the present communication we desire to report further observations of the same general nature concerning (1) the effect of cold applications on the cutaneous and deep temperatures of the thigh; (2) the effect of heat and cold on the temperature of certain abdominal viscera, viz., the kidney and the liver; (3) the effect of heat and cold on the temperature of the brain. The technique was precisely the same as in the previous experiments, the duration of the period during which the applications of heat or cold were made being about one hour in practically all the observations. The same applicator was used as for muscle. It has a diameter of 33 mm.

I. *Effect of Cold Applied to the Skin of the Thigh (Gluteal Region).*

The effect produced on the subcutaneous temperature by local cold is very marked, and is immediately evident, as shown in Table I., in the experiments of which two thermo couples were used, one immediately under the applicator and the other at some distance from its edge. With a difference in temperature of about 20° C. between the applicator and the skin, a fall of about 13°–14° C. occurred under the applicator, and with a difference of about 23·5° C. the fall was 17 and 18·3° C. In all cases the drop in temperature was very sharp at first, taking about five minutes to reach to within 1·5° C. of the temperature ultimately attained (see Fig. 1). After removal of the cold the temperature of the skin rose at about the same rate as it had fallen.

Regarding the extent of lateral spread of the cooling, it was found that with temperature differences of from 16°–23° C. this was usually evident at any distance up to 25 mm., but not so at 30 mm. This conforms well with the results obtained for lateral spread of heat, in which case, with temperature

[1] This investigation is being conducted under the auspices of the Research Committee, Medical Services, Department of Health, Ottawa.

[2] Macleod, J. J. R., Self, A. R., and Taylor, N. B., THE LANCET, 1920, ii., 645.

differences of about 12° C., spreading to about 20 mm. was observed.[3]

To study the depth at which the cooling penetrates, the needles were placed one of them under the skin and the other in the muscles. In four observations (Table II.), in which the applicator was at a temperature of 21°–23·5° C. below that of the muscle, there was a fall of from 3·9° to 4·7° C. at a depth of 11–15

[3] Loc. cit.

TABLE I.—*Lateral Spread of Cold.*

Date of expt.	Temp. applicator.	Distance of second needle from applicator.	Temp. of skin, second needle.	Difference between temp. of applicator and skin.	Temp. reached under applicator.	Amount of fall.	Temp. reached at distance.	Amount of fall.	Remarks.
	°C.	mm.	°C.	°C.	°C.	°C.	°C.	°C.	
21/6/20	12·3	30	35·5	23·3	18·5	17·0	35·5	0·0	—
23/6/20	13·0	20	34·0	20·0	20·0	14·0	33·0	1·0	—
18/6/20	13·0	18	36·8	23·8	18·5	18·3	32·0	4·8	Gradual fall at distance with no recovery.
11/6/20	14·3	25	35·0	20·7	22·0	13·0	34·0	1·0	—
10/6/20	12·3	22	29·0	16·2	25·0	4·0	27·8	1·2	—
25/6/20	12·5	22	26·0	13·5	—	—	22·4	3·6	Great difference between skin temps.

TABLE II.—*Effect of Cold on Leg.*

Date of expt.	Temperature of applicator.	Temperature of muscle.	Difference between temperatures of applicator and muscle.	Temperature reached in muscle.	Fall of temperature.	Depth of thermo-couple.
	°C.	°C.	°C.	°C.	°C.	mm.
12/7/20	14·0	37·5	23·5	32·8	4·7	12
13/7/20	15·0	37·6	22·6	33·5	4·1	15
16/8/20	16·4	37·5	21·1	33·5	4·0	12
17/8/20	15·7	37·9	22·2	34·0	3·9	11

TABLE III.—*Effect of Heat and Cold on Liver.*

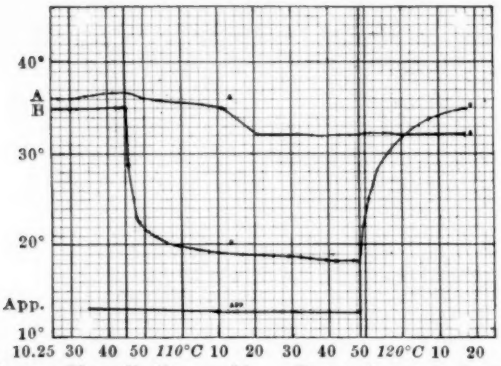
Date.	Temp. of applicator.	Temp. of liver.	Difference between liver and applicator.	Temp. reached in liver.	Temp. in liver 10 minutes after removal of heat.	Extent of rise or fall.	Depth of—thermo couple.		Remarks.
							from skin.	from surface of liver.	
	°C.	°C.	°C.	°C.	°C.	°C.	mm.		
5/1/21	48·0	39·0	9·0	39·4	39·4	0·0	32	—	
6/1/21	47·5	37·7	9·8	38·2	37·8	0·4	12	—	
10/1/21	48·0	36·9	11·1	38·3	38·1	0·2	19	4	Gradual rise.
	47·C	38·9	8·7	39 3	39·1	0·2	19	4	
11/1/21	48·0	37·4	10·6	38·0	37·9	0·1	34	2	Gradual — needle 5 mm. from edge of applicator.
12/1/21	48·0	37·5	10·5	39·0	38·7	0·3	29	5	—
13/1/21	47·9	37·8	10·1	39·0	38·6	0·4	32	12·2	Rapid, then gradual.
14/1/21	47·9	37·7	10·2	37·9	37·7	0·2	26	5	Very slight rise at first.
28/2/21	11·5	36·65	−25·15	35·1	36·5	−1·55	18	—	—
18/3/21	20·4	36·21	−15·81	35·4	36·2	−0·8	19	—	—
15/3/21	16·2	36·90	−20·78	34·5	36·5	−2·0	19	—	—
15/3/21	16·35	37·4*	−21·05	33·65	37·4	−3·75	31	—	—
14/3/21	13·6	35·7	−22·1	34·25	35·8	−1·55	19	—	—

* Temperatures in liver and muscle gradually rising.

TABLE IV.—*Effect of Heat and Cold on Kidney.*

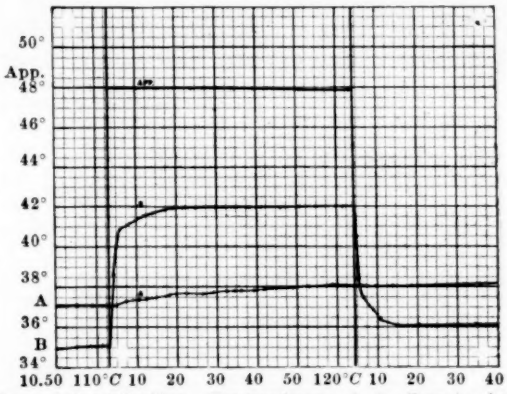
Date.	Temp. of applicator.	Temp. of kidney at start.	Difference temp. between kidney and applicator.	Temp. reached in kidney.	Temp. in kidney 10 minutes after removing heat.	Extent of rise or fall.	Depth of thermo-couple.	Remarks.
	°C.	°C.	°C.	°C.	°C.	°C.	mm.	
25/1/21	47·8	36 6	11·2	37·9	37·6	0·3	29	Rose quickly at first, then slow muscle temp. slowly rising.
24/1/21	48·0	35·3	12·7	36·5	36·3	0·2	30	Gradual, muscle constant.
21/1/21	48·2	37·3	10·9	37·9	37·9	0·0	28	
20/1/21	43·2	37 4	10·8	38·0	37·8	0·2	29	Quick at first, then gradual.
19/1/21	48·1	37·4	10·7	37·9	37·7	0·2	21	
18/1/21	47·9	37·5	10·4	38·2	38·0	0·2	19	Gradual from start.
17/1/21	47·8	35·7	12·1	37·2	37 1	0·1	23	
16/2/21	16·4	37 4	−21·0	36·5	37·1	−0·6	29	Slow.
21/2/21	20·5–20·15	37·75	−17·0	37·75	37·75	0·0	34	—
22/2/21	12·3–10·8	37·3	−25·8	36·25	37·0	−0·75	25	Point of needle through kidney.
23/2/21	12·0–11·75	38·1	−25·3	37·85	38·05	−0·20	27	—
25/2/21	13·0	37·45	−24·45	37·0	37·10	−0·1	19	—
24/2/21	12·0	36·6	−24·6	34·9	36·6	−1·7	27	—

FIG. 1.



App. = cold application on hip. Temperatures: A, in subcutaneous tissue 18 mm. from application; B, in subcutaneous tissue under application.

FIG. 2.



App. = hot application. Temperatures: A, in liver to depth of 4 mm.; B, in subcutaneous tissue over A.

mm. from the surface. We have not as yet determined the maximal depth to which this effect, or that of heat, might penetrate.

II. *Effects of Heat and Cold on Liver and Kidney.*

Liver.—The thermo couple was inserted in the liver through a small skin incision along the lower border of the costal margin, the applicator being placed over the lower ribs. The exact position of the needle in the liver was determined by post-mortem examination. As might be expected from its great vascularity, the changes in temperature in this organ, for equal differences in temperature between the applicator and the body, are decidedly less than in muscle when heat is applied. This will be evident by comparison of the figures in Table III. of this paper with those of Table III. in the previous paper.[4] In making the comparison it should be noted that the extent of temperature change is given in the present report as the difference between the final temperature reached and the temperature ten minutes *after* removal of the applicator.

This procedure was necessary because the body temperature became slightly changed during the hour or so of heat or cold application, whereas this was not observed to be the case, as a rule, with muscle. A typical curve of the effects of local heat on the liver is given in Fig. 2. The effects of cold are much more marked. Although this fact is mainly due to the much greater difference between the temperatures of the applicator and body, it would appear that there is some critical temperature difference below which the cold has a progressively greater influence. This may be due to vaso-constriction.

Kidney.—Under conditions that were, in general, the same as in the case of the liver, similar results were obtained, at least for heat. Although the temperature rose more or less continuously throughout the whole period of application this was due in every case mainly to a rise in body temperature (Table IV.). Considered on this basis—i.e., comparison of final temperature reached with that ten minutes after removal of the applicator—the temperature in the kidney, at whatever depth, never rose more than 0·3° C., even when the applicator was 12° C. higher than the body temperature.

With cold, in which case greater differences in temperature were possible, the effect on the kidney was of the same order as for heat, but in one case it amounted to a fall of 1·7° C., as judged by comparison of the temperature ultimately reached and the recovery temperature. In all these observations the body temperature, recorded in a muscle, either kept constant or fell a small fraction of a degree.

TABLE V.—*The Brain: Effect of Heat and Cold.*

No. or date.	Temp. of applicator	Intial temp. of brain.	Difference between temp. of applicator and brain.	Temp. reached in brain.	Temp. 5 minutes after removal of applicator.	Extent of change.	Depth of thermo-couple from surface.	Position of thermo-couple.	Remarks.
	°C.	°C.	°C.	°C.	°C.	°C.	mm.		
104	42·3	37·6	4·7	38·2	37·5	0·7	17	Deep surface right crus.	—
103	44·2	36·75	7·45	37·8	36·3	1·5	13	Superficial to o–o chiasma.	—
2944	46·1	38·7	7·4	39·3	39·1	0·2	18	Deep surface of pons.	—
382	45·5 (abt.)	36·5	9·0	37·35	36·5	0·85	16	Between corp. quad.	—
11	48·0	38·4	9·6	39·5	39·0	0·5	14	Deep in left crus.	Temp. muscle rose.
1	47·9	37·0	10·9	38·5	37·6	0·9	15	Centre right o–o chiasma.	Temp. muscle rose.
11	48·3	37·4	10·9	40·1	37·6	2·5	13	Right frontal lobe.	—
1	48·25	37·8	10·45	38·6	38·2	0·4	16	Deep in pons.	—
27/1/21	48·0	38·5	9·5	39·25	38·5	0·75	15	Deep in right thalamus.	—
26/1/21	48·0	37·15	10·25	38·25	—	—	14	Left of o–o chiasma.	—
106	40·5	35·65	4·85	36·2	35·2	1·0	17	Deep in right optic thalamus.	Temp. muscle fell.
389	15·0	36·7	− 21·7	36·6	36·2	—	16	Base of brain ant. to pons.	Temp. muscle fell.
388	18·5	35·25	− 16·75	31·5	34·9	− 3·4	14	Deep surface of right crus.	—
390	18·7	37·5	− 18·8	35·2	37·5	− 2·3	13	Region of left optic thalamus.	—
393	25·5	36·1	− 10·6	34·7	28·6	− 3·9	14	In right optic thalamus.	Temp. muscle fell.
392	23·0	36·75	− 13·75	34·85	36·1	− 1·25	15	Upper surface of right crus.	Temp. muscle fell.
385	10·7	36·55	− 25·85	32·65	36·1	− 3·45	13	Base of brain near optic chiasma.	—
391	21·2	36·70	− 15·5	34·0	36·3	− 2·3	13	Lateral ventricle right side.	—
387	17·5	36·25	− 18·75	34·1	35·2	− 1·1	16	Near right corpus quadrigeminus.	Temp. muscle fell.
386	10·75	36·2	− 25·45	32·2	35·5	− 3·3	14	Tip of right frontal lobe.	—
18/2/21	29·2	36·6	− 7·4	35·85	36·2	− 0·75*	14	Lateral ventricle.	—

* Difference between initial temperature and temperature reached by applicator.

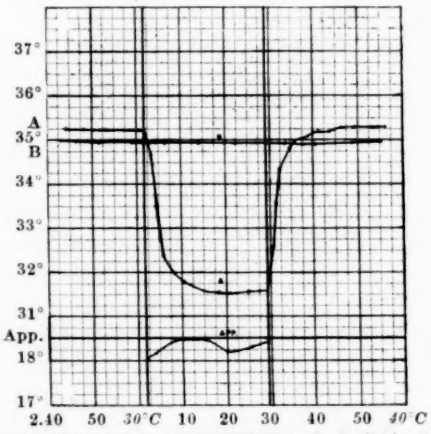
[4] Loc. cit.

The general conclusion drawn from these experiments is that it is not possible to cause any significant change in temperature in the liver or kidney by the local application to the surface of the body over either viscus of applicators that are about 10°–12° C. warmer than the viscus. When the applicator is 20°–25° C. colder than the body the fall of temperature is quite marked in the case of the liver, but usually is insignificant in the case of the kidney.

Effect of Heat and Cold Applied to the Head on the Temperature of the Brain.

In all observations on the brain the temperatures were also taken deep in the muscles of the thigh and in the majority of cases no significant change was observed to be produced on body temperature as a result of the application of heat or cold to the head. In certain cases, however, such occurred, when it was usually in the same direction as the temperature of the applicator. In practically all cases the temperature in brain and muscles bore the same relationship to each other after removal of the applicator as before. It will be observed (Table V.) that application of even moderate degrees of heat—viz., 4·7° and 4·85° C. above body temperature—caused a rise of over one-half degree at a distance of 17 mm. from the surface. With the applicator 7·4° C. warmer than the brain the temperature in the latter rose through 1·5° C. at a depth of 13 mm. and through 0·2° C. at 18 mm. The remaining observations in the table show a satisfactory correspondence between the depth of the thermo couple in the brain and the extent to which the temperature rose. It may be concluded that heat penetrates from the surface into the brain much more than it does in the case of the liver or kidney, although apparently not so much so as into muscle. The changes in temperature are also very prompt both at the beginning and end of the period of application, as is shown in the curve (Fig. 3). In this regard also the results are decidedly

FIG. 3.



Cold application over A. Temperatures: A, in brain 14 mm. from skull surface; B, in hip 18 mm. deep.

different from those obtained in the liver and kidney.

The result following cold applications are comparable with those following heat, thus, with temperature differences of 7·4° C. and 10·6° C. the brain cooled 0·75° C. and 1·4° C., respectively, at a depth of 14 mm. Sometimes these effects were still more pronounced (e.g., Exp. No. 393). When lower temperatures were used the fall in brain temperature became very marked indeed; thus it fell through 3·3° and 3·45° C. at a depth of about 14 mm., when the applicator was at a temperature of about 25° C. below that of the body. A knowledge of this fact must be of importance therapeutically. The temperature changes were as prompt as when heat was applied.

AN ANOMALOUS RESPONSE TO DIRECT FARADIC STIMULATION OF A NERVE

AT RE-EXPLORATORY OPERATIONS.

BY JOHN S. B. STOPFORD, M.D. MANCH.,
PROFESSOR OF ANATOMY, UNIVERSITY OF MANCHESTER.

DURING the past two or three years re-exploratory operations have been performed upon a number of patients suffering from injury to peripheral nerves, because no satisfactory recovery of function has followed the primary surgical procedure of end-to-end suture or the insertion of a nerve-graft. The results of these examinations of the site of the original operation and the histological investigation of pieces of nerve excised, where re-suture is found to be necessary, are likely to furnish us with very valuable information about regeneration and the factors which may influence the normal development of new conducting channels.

At the re-exploratory procedures a number of surgeons have been surprised to find that on direct faradic stimulation of the nerve trunk a response has been obtained in muscles supplied by the nerve below the lesion, although no voluntary power had ever been detected or any faradic response elicited in the muscles at numerous clinical examinations of the patient immediately preceding the second operation. Several attempts have been made to explain the occurrence of this astonishing and somewhat misleading phenomenon, but so far as I am aware no very satisfactory evidence has been advanced to support the theories suggested for its causation.

An opportunity recently presented itself to me of studying a patient exhibiting this phenomenon, and the conditions found presented a possible explanation, for which further support was subsequently found in a second patient. Since this unusual occurrence of a response in certain muscles on direct faradic stimulation of the nerve trunk may lead to errors in treatment and prognosis, it seems wise to place my findings on record without further delay, in order to see if the experience of others in the future may support or disprove the explanation put forward in this paper.

Private J. H. received a gunshot wound of the left forearm on Sept. 9th, 1916, and this injury was followed immediately by complete loss of conduction in the ulnar nerve. Since no recovery occurred after the wound had healed soundly the nerve was explored on April 4th, 1917, by Mr. H. Platt, who found complete division of the nerve trunk and a gap of 1 inch on resecting the ends. As the manœuvre of displacement of the ulnar nerve in front of the internal condyle of the humerus had not then become a routine procedure in cases where an extensive defect was encountered, it was decided to insert a graft from the radial nerve.

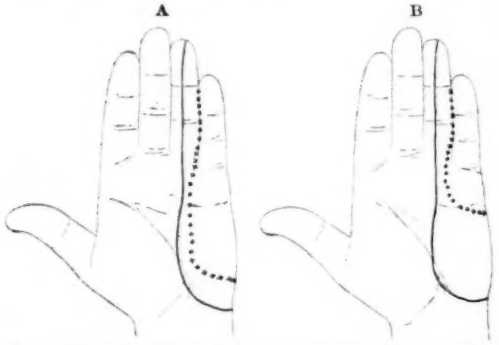
The patient was under observation after operation for a period of nearly two years, when he was boarded out of the army and left the district; up to that time there was no clinical evidence of any conduction through the graft, and the condition of this patient up to that point was included in a recent paper in THE LANCET.[1] He reported at hospital again in December, 1920 (44 months after the insertion of the graft), when there was paralysis, accompanied by wasting and loss of faradic response, of all the intrinsic muscles of the hand supplied by the ulnar.

Being away at the time I did not get an opportunity of making a personal examination until after the performance of the second operation. In view of the above findings he was admitted to the Grangethorpe Hospital and Mr. Platt re-explored the ulnar nerve in the region of the previous operation on Dec. 18th, 1920. Mr. Platt has very kindly furnished me with the following report of the operation: "The ulnar nerve was exposed widely in the forearm through a long incision and the nerve traced up from the wrist to the site of the previous operation. The distal part of the nerve was well-developed but seen to expand slightly as the graft was approached. Faradic stimulation of the distal part caused a definite response in part of the flexor brevis pollicis, in the adductor pollicis, and abductor minimi

[1] Stopford, J. S. B.: The Treatment of Large Defects in Peripheral Nerve Injuries, THE LANCET, 1920, ii., 1296.

digiti. On exposing the graft the fascial sheath was recognisable and the amount of scar surrounding it was very small and not dense nor causing any compression. The graft was seen as a small well-developed nerve strand extending between the proximal and distal fusiform swellings. These swellings were not at all dense or hard and faded gradually into the graft itself. Faradic stimulation of the proximal bulb, the graft itself, and the distal bulb caused a brisk response in the muscles enumerated above. In view of these findings the nerve was left undisturbed and its covering restored."

It is worth recording that the response in the intrinsic muscles was witnessed by five other members of the staff of the hospital and there is no possibility of error. The electrical reactions of the intrinsic muscles were taken several times after the patient had recovered by Dr. J. Cowan, medical officer in charge of the physio-therapeutic department at the Grangethorpe Hospital, and, although



A, shows sensory loss immediately after insertion of nerve-graft. B, shows sensory loss 44 months later. Continuous line = limit of anæsthesia. Crosses = limit of analgesia to pin-prick.

a normal faradic response was obtained in the thenar group of muscles, no contraction was ever elicited in the hypothenar group, adductor pollicis, or the interossei.

I examined the patient about one month after the second operation and found an absolute loss of voluntary power, accompanied by advanced atrophy, of the adductor pollicis, hypothenar muscles, and the interossei. There was anæsthesia to the lightest applications of a fine brush over the full area of distribution of the ulnar, but a very appreciable recovery of protopathic sensibility had occurred since my last examination, made nearly two years before. This recovery of protopathic sensibility has been verified by subsequent examinations. There was a positive Tinel's sign as distal as the level of the pisiform bone. No change has occurred during the five months succeeding the re-exploration.

In the history of this patient there are associated two significant features, which seem to bear upon the phenomenon referred to in the opening paragraph of this paper: First, the definite evidence of conduction through the graft; and secondly, the occurrence of some recovery of protopathic sensibility. The history suggests that the graft has happened to be opposed to a bundle of afferent fibres in the proximal segment of the ulnar; on bridging the graft some of these afferent fibrils have grown down in the distal segment and become connected with afferent terminals and are now functioning as manifested by the recession of the protopathic loss; other fibrils may have invaded efferent channels to certain muscles and may consequently be responsible for the response on direct faradic stimulation of the nerve. The central connexions of such fibres as the latter would not permit them to function correctly and conduct impulses giving rise to voluntary movements. It would be unwise even to suggest such a possibility from the condition found in one patient, but on referring to my notes I discovered that the only other patient examined, who exhibited this anomalous faradic response, supported the contention suggested by the first patient.

In the second patient the site of an end-to-end suture was re-explored some two years after the primary operation, because there had been no recovery voluntary power or faradic response in any of the muscles supplied by the injured nerve. At the re-exploration a response was obtained on direct faradic stimulation of the nerve trunk, and on reference to the notes I found I had recorded a definite recovery of protopathic sensibility, although the possible significance of the fact had escaped my attention at the time.

The experience gained from a study of these two patients seems to suggest very strongly that the anomalous occurrence of a response in muscles on direct faradic stimulation of a nerve at operation may be explained by the regeneration of afferent fibrils down efferent pathways in the distal segment of the nerve. If future observations prove this theory to be correct it must have an important influence upon the procedure adopted by the surgeon at the second operation. Clearly, if this is the correct interpretation of the ætiology of this curious phenomenon, the surgeon must not be misled and induced by its presence to leave the nerve alone and expect a functional recovery, but must resect the affected piece of nerve and perform an end-to-end suture.

Although at last a patient has appeared showing definite evidence of regeneration through a nerve graft, the condition which this patient presented is not likely to modify the views expressed in a recent communication upon the practical utility of bridging defects by grafts.

TWO CASES OF APLASTIC ANÆMIA.

BY E. C. PILLMAN WILLIAMS, M.B., B.S. LOND.,
RESEARCH STUDENT UNDER MEDICAL RESEARCH COUNCIL; LATE MEDICAL OFFICER OF NATIONAL FILLING FACTORY, NO. 7.

AT the present time, when the effect on the blood of long-continued exposure to X ray tubes and radium is being much discussed, it may be of interest to bring forward accounts of two cases of aplastic anæmia, the blood changes in which exhibit a remarkable parallelism with the case of the X ray worker reported in THE LANCET of April 16th last.

CASE A.—Mr. A. K., aged 45, after being passed medically fit, worked for five weeks in T.N.T. sheds. He was then noticed to be slightly jaundiced, and complained of loss of appetite and abdominal pain. He was at once removed from all contact with T.N.T. Five weeks later the jaundice had entirely disappeared. Ten weeks later his general condition was so much improved that he was allowed to resume out-door work. Three months later he began to suffer from shortness of breath and persistent epistaxis. On examination he was found to be very anæmic, and his heart was slightly dilated. He was advised to come into hospital, but refused. Two weeks later he was so obviously worse that he was admitted to hospital under the care of Dr. A. G. Phear. On admission he was found to have a blood count as follows: Reds, 1,528,000; whites, 7200; Hb, 35 per cent.; colour index, 1·5; P., 45 per cent.; L., 53 per cent.; E., 1·5 per cent.; B., 0·5 per cent. He had headaches, epistaxis, retinal hæmorrhages in both eyes, and slight fever in the evening. Despite treatment with arsenic, iron, &c., he got rapidly worse and died on Feb. 16th, just over four weeks from the date of admission.

At the post-mortem the liver (34 oz.) was found much scarred; spleen normal. The bone marrow of the shaft and extremities of the femora was yellow and opaque. Stained smears showed chiefly fat cells, and very few red blood cells and lymphocytes. Stained sections showed that the marrow consisted entirely of fat cells and a few minute islands of lymphocytes. Complete blood counts of this and the next case have been appended for the more easy comparison with the X ray case.

CASE B.—Mrs. P., aged 41, healthy on admission to factory, had worked in T.N.T. sheds for 12 weeks when it was noticed that her conjunctivæ were yellow, and her skin definitely tinged, and bile was present in urine. She was admitted to hospital under the care of Dr. J. W. Carr. After four weeks her condition was so much improved that she was discharged. Five weeks later she was examined and found to have symptoms of profound anæmia. She was very pale, had numerous purpuric spots on the chest, neck, and abdomen. She was again admitted to hospital, and found to have a blood count as follows: Reds, 2,800,000; whites, 4800; Hb, 50 per cent.; colour index, 0·8; P., 24 per cent.; L., 75 per cent.; E., 0·6 per cent.; B., 0·2 per cent. She had headaches, bleeding from gums,

BLOOD COUNTS OF THREE CASES OF APLASTIC ANÆMIA.

Case A.

—	Reds.	Whites.	Hb %	L.	P.	E.	B.	Remarks.
Jan. 16th, 1917 ..	1,528,000	7200	35	53·5	44·5	1·5	0·5	Reds vary in size; no nucleated reds.
23rd ..	1,248,000	4500	34	54	45·5	0·5	—	
30th ..	920,000	3700	24	61	38	1	—	Some polychromasia.
Feb. 2nd ..	664,000	2700	18	49·5	40	0·5	—	
9th ..	693,000	2300	17	55·5	44·5	—	—	1 nucleated red in 200 count.
16th: Pt. died.								

Case B.

May 11th, 1917 ..	2,800,000	4800	50	74·6	24·6	0·6	0·2	Slight poikilocytosis: slight variation in size of reds.
26th ..	1,262,000	2500	30	73	26·5	—	0·5	Slight poikilocytosis. No nucleated reds.
June 4th ..	844,000	2700	20	73	27	—	—	1 nucleated red in 300 white count.
9th ..	686,000	3200	16	65	35	—	—	1 nucleated red seen.
14th ..	476,000	3600	14	64	36	—	—	No nucleated reds seen.
17th: Pt. died								

Case of Aplastic Anæmia due to Exposure to Gamma Rays (THE LANCET, April 16th, 1921).

October, 1920 ..	4,200,000	7200	75	38	60	1·7	—	—
January, 1921 ..	2,700,000	1600	54	76	20	3	—	No poikilocytosis; no nucleated reds.
February, ...	2,850,000	—	45	—	—	—	—	No variation in size.
March 1st	1,350,000	1030	26	72 large 5 small	20	0·5	1 (hyaline)	Poikilocytosis; macrocytes and microcytes; no nucleated reds.
19th ..	1,005,000	840	18	54 large 4 small	41	—	1 (hyaline)	

P., Polymorphs; L., Lymphocytes; E., Eosinophiles; B., Basophiles.

retinal hæmorrhages, and a temperature rising to 100° in the evenings. She went down-hill very rapidly, in spite of treatment by iron, arsenic, marrow tablets, and transfusion of blood, and died on June 17th. Post mortem the heart was in advanced fatty degeneration. Liver also showed fatty degeneration. Spleen normal. Bone marrow yellow and opaque.

It will be noted how close is the general and detailed similarity of the three blood pictures. The symptoms in the three cases are also almost identical. At first sight the "fons et origo" of these cases seem entirely unlike, but it is known that T.N.T. first stimulates and then kills the bone marrow, and long-continued exposure to gamma rays probably has the same action. Most T.N.T. anæmias are preceded by jaundice, but I am not aware that X ray workers are specially liable to this. Among the many thousands exposed to T.N.T. during the war only a very small percentage developed anæmia; probably the same is the case with X ray workers.

I am much indebted to Dr. Carr and Dr. Phear for their kind permission to publish the notes of the cases while under their care, and to Dr. Mary Schofield and Dr. K. J. Armstrong for assistance with the blood counts.

Medical Societies.

LONDON ASSOCIATION OF THE MEDICAL WOMEN'S FEDERATION.

Birth Control.

A MEETING of this Association was held at the Elizabeth Garrett Anderson Hospital on June 21st, with Mrs. FLEMING, M.D., in the chair, when a discussion on Birth Control was opened by Dr. ELIZABETH WILKS, who strongly advocated State birth control as the only practical method of prevention of the renewal of the race principally from the worst stocks. She pointed out that to-day the classes superior in intelligence and capacity practise individual birth control (not always from sufficiently justifiable motives), whereas the less intelligent, criminals and prostitutes, have neither the prudence nor the initiative to take any measures for limiting their offspring. Dr. Wilks thought that with a scheme of State birth control the unfit could be segregated and prevented from reproduction, but this should be done in a manner more efficient than that attempted by the Act for the Care of the Mentally Deficient, which fails owing to the insufficient number of homes for maintaining the defectives. On the other hand, by changes in the marriage laws, taxation, &c., an increase of birth-rate among the fit should be simultaneously indirectly promoted.

Mrs. SCHARLIEB said that in over 40 years' experience she had found that artificial limitation of birth damaged a woman's nervous system. The thwarting of any natural process caused injury. Limitation of the family is not necessarily, even in the poorest classes, in the interests of the wife. It removes the fear of consequences from the husband, hence encouraging over-frequent sexual intercourse. Mankind is already oversexed. Unbridled sex passions are likely to lead to degeneration and to war against self-control and self-respect.

Lady BARRETT said that the subject was now engaging much attention among the lay public, hence it was very important for medical women to think out their own views. She thought all would agree that in certain cases conception must not be allowed—for instance, in cases of existing disease, insanity, &c., and in working-class women already enfeebled by overwork. In what might be called "ideal cases," where control was practised with a view to enabling parents to look after a few children more effectually it was often assumed, quite unjustifiably, that every woman bears a child every year—it was also forgotten that privation and overwork rather than easy circumstances tended to make for overproduction. How should birth be controlled? In the first place it must be remembered that self-control was a great factor in education and anything leading to the loss of this was harmful. The question of control should be discussed privately and individually. It should not be forgotten that particularly in the working classes child-bearing might have a less harmful effect on a woman than excessive sexual demand. The teaching of what was normal in sex was thus extremely important. Lady Barrett added that she was much opposed to the present broadcast teaching among the lay public. She thought an opportunity for teaching arose at antenatal clinics, where medical women had an opportunity of getting into intimate relationship with mothers.

An animated discussion followed, in which the PRESIDENT, Dr. M. STURGE, Prof. L. MCILROY, Dr. L. FAIRFIELD, and others took part.

Reviews and Notices of Books.

STUDIES IN DEFICIENCY DISEASES.

By ROBERT MCCARRISON, M.D., D.Sc., Hon. LL.D. London: Henry Frowde and Hodder and Stoughton (Oxford Medical Publications). 1921. Pp. xvi. + 270. 30*s*.

Colonel McCarrison's researches into the nature of deficiency diseases are too well known to need any recommendation to medical readers. This book, based on investigations extending over several years, is a most welcome and important contribution to medical literature. Many of the results have been published, it is true, in various journals and proceedings of societies, but their value is increased by being collected and in a measure reconstructed in a single volume easy of access. In his investigations Colonel McCarrison has combined experimental work with close observation of clinical and pathological results of faulty food as manifested in the animal body as a whole, thereby hoping to ascertain what forms of human illness might reasonably be attributed to like causes. He starts with a belief that the term deficiency disease will be found to have wider significance than has hitherto been attached to it. The discovery of the accessory food factors designated "vitamins" gave rise at first to an impression that single constituents in diet played an almost overwhelming part in nutrition as a whole. Against this hasty conclusion Colonel McCarrison enters a well-considered protest. He does not deny that the absence of single food factors may produce striking effects, but he concerns himself more with the complexity of circumstances which may conduce to partial or total deficiency of essential substances. Whilst we are keenly alive to the necessity of recognising the prevalence of the grosser manifestations of deficiency disease, there is a danger of neglecting the lesser signs caused by ill-balanced diets or relatively slight insufficiency of vitamins and other constituents in food. He remarks that frequently it is not the food supplied to the individual, but the food eaten and assimilated which may be dangerously deficient in one or more vitamins, in protein of good biological value, and disproportionately rich in starch or sugar or fats or in all three. Access to abundance of food does not necessarily protect from the effects of food deficiency. "Some there are" he writes "living in luxury, whom ignorance or fancy debars from choosing their food aright." This no less than poverty helps to produce a poor national standard.

Colonel McCarrison's experiments upon avitaminosis were carried out with diets not only deficient in certain factors, but also with diets faulty from excess and want of balance in their ingredients. He imitated as far as possible the ill-balanced diet which in human subjects gives rise to beri-beri—that is to say, a diet devoid of vitamin B and too rich in fats and starch. The result, in pigeons, was loss of appetite, fatty diarrhœa, anæmia, wasting, low temperature, slow respiration, general malaise, and certain nervous symptoms. In monkeys he tried the effects of deficiency in vitamins A and B. The animals developed gastro-enteritis, with unhealthy skin, and nervous symptoms—a state resembling "dry beri-beri" as seen in man. But Colonel McCarrison's observations carry us far beyond mere confirmation of clinical and pathological facts such as these. His attention was arrested by the way in which malnutrition affected various organs in differing degrees. In general, the organs least essential to the life of the individual suffer most, whilst nature does its best to protect the more important structures. An outstanding feature in all forms of food deficiency is enlargement of the adrenals, and in males enlargement of the pituitary. While certain organs enlarge others may atrophy. Colonel McCarrison suggests that the effects of food deficiency make themselves felt, not entirely perhaps but in great measure, through derangements of the endocrine regulators of metabolism.

His conclusions upon these points are so important as to bear quoting at length. The adrenal glands enlarge whilst the thyroid atrophies in the presence of food deficiencies. When the food is excessively rich in proteins and fats, without deficiency of vitamins, the thyroid hypertrophies and the adrenals diminish in size. Atrophy of the pancreas is common, especially in animals whose deficient food is excessively rich in fats, while the pituitary enlarges in males but not in females. The reproductive organs demonstrate both loss of bulk and loss of function. Colonel McCarrison's view is that food deficiency deranges both the normal production of hormones and the functional perfection of the sympathetic nervous control; consequently, the digestive organs are deprived of the full advantage of that efficient regulation and correlation which normally they would derive from healthy endocrine action. As an example of the importance to be attached to these secondary effects we read: "It is known that hypothyroidism may lead to hypoacidity, to impaired secretion of gastro-intestinal juices, to the production in both stomach and duodenum of such lesions as petechial hæmorrhages, superficial hæmorrhagic erosions, acute ulcer, and diffuse inflammation." To adrenal insufficiency he attributes such disturbances as imperfect secretion of gastric juice, gastric ulcer, and derangement of the glycogenetic process, as well as vomiting and dilatation of various parts of the gastro-intestinal tract from failure of the inhibitory effects of epinephrin over unstriped muscle. Similar symptoms may follow pituitary defects.

Enough has been said to show that Colonel McCarrison's work has brought us to the threshold of a new wonder chamber in medicine. As he himself has often insisted, he is only at the commencement of his investigations, and he and the other distinguished workers in this field must not be surprised if their novel ideas meet with tardy acceptance, and even certain opposition. In investigations such as these there is need of men with sufficient imagination to formulate theories, sufficient scientific knowledge to put them to experimental tests, and sufficient judgment to draw conclusions even adverse to their own theories. Colonel McCarrison's book bears evidence that he possesses these qualifications.

The printing and illustration of the work are very good.

CRITICAL MICROSCOPY.

How to Get the Best out of the Microscope. By ALFRED C. COLES, M.D., D.Sc., M.R.C.P. Lond., F.R.S. Edin. London: J. and A. Churchill. 1921. Pp. 98. 7*s*. 6*d*.

Dr. Coles has produced a valuable work on the equipment and manipulation of the microscope for bacteriological purposes, and a serviceable treatment of the subject is compressed within the narrow limits of a handy volume. In the main, the author avoids the discussion of theoretical points, but he breaks away with good judgment from his rule in a passage on a subject, strangely neglected by most writers on the microscope, which he calls the optical index of a lens. Optical index is a measure of the diameter of the beam which the instrument transmits into the observer's eye. In ordinary vision the beam of light by which an object is seen is limited by the observer's iris and may be taken, therefore, to average the eighth or tenth part of an inch in diameter. The microscope is not constructed to transmit, in any circumstances, a beam of greater width than this, and manifestly no purpose would be served even if a broader beam were transmitted, for it would be cut down in passing the pupil of the observer's eye. For low powers, the transmitted beam approximates to this limit. But by an optical necessity the equipment of the instrument for work at higher powers implies the reduction of this diameter, so that with magnification of, say, a thousand diameters it is very common for the transmitted beam to be reduced to about 1/100 inch across, and for still higher

powers this narrow beam is narrowed still more, so that, speaking broadly, the diameter is inversely proportional to the magnifying power.

It is many years since Helmholtz pointed out that this law puts a final limit, in theory, to the magnifying power that can usefully be employed, for at a certain point the effects of the diffraction which accompanies this narrowing of the beam is destructive of definition in the image. Thus beyond an assignable limit the more highly magnified image would be no better resolved than one of lower magnification. However, we are far from having yet reached that limit in actual practice, and it seems improbable that we ever shall reach it, for still more serious in blemishing the picture are the entoptic obstructions, teardrops, muscæ volitantes and the like, which such narrow beams render visible in the eye and project as intrusive objects on the image. Only an exceptionally fine eye can tolerate magnification of 3000 diameters and upward in objects visually observed, and only an instrument in fine condition can produce images unspoilt by dust and other obstructions on the back of the objective and lenses of the ocular. Hence for practical purposes this condition is of great importance, although so generally ignored by writers and teachers in their discussion of the microscope. Dr. Coles points out that there are wide differences between lenses of equal magnifying power in this respect, so that one objective may give a beam having three times the optical index of another. This means not only that the lens with the greater optical index yields the brighter image; it means also (and this is certainly of no less importance) that a speck of dust in the instrument or an obstruction in the eye which, completely quenching the beam from one spot in the object, would be seen as a blot in the picture yielded by the lens of low optical index, will be imperceptible in the image yielded by the better lens. The determination of optical index, is not a matter of any difficulty, but if Dr. Coles produces a second edition of this book we hope that he will describe his method of carrying it out, for both in devising and in describing methods of manipulation he has a very pretty faculty.

Dr. Coles's self-imposed rule against theoretical discussion might, we think, have been more often infringed with impunity, even with advantage. For instance, he expresses a definite preference for the old-fashioned paraffin lamp as an illuminant, a view which stands, in our opinion, in considerable need of justification. The paraffin lamp certainly has many drawbacks. It calls for constant attention when in use and requires furbishing up after any long period of disuse. It must be kept at a distance from the microscope or its effluvium will incommode the observer and damage the adjustment of the instrument. At the same time its intrinsic brilliancy is so low that placing it far from the mirror raises serious questions of lighting. Finally, its unsymmetrical form is a distinct handicap in its use for bright field illumination, so that it is useless as an illuminant for high power work except under the condition known as critical illumination. These are drawbacks from which electric light relieves the microscopist. In the case, especially, of the new gas-filled lamps of the "half-watt" type the intrinsic brilliance of the illuminant is so great that with it the observer of to-day can accomplish things that the worker with the paraffin lamp cannot even dream of. It is true that the naked filament is an unsuitable source of light, but the simple expedient of covering it with ground glass secures a light source which, being broad and symmetrical, gives a perfect image whether focused in the same plane as the object or not, and its adaptability puts the microscopist in a position to take great liberties in other respects with his illumination.

Whatever view readers may take of the choice of illuminant they will certainly find recommendations in this book of great practical importance. For example, Dr. Coles makes use of small-sized photographs when taking notes of his work. Photomicrography in a simplified and cheapened form might be made an important aid to note-taking by bacteriologists and others. Dr. Coles illustrates the use of such notes, of which as many as sixteen can be taken on a single quarter plate. He also describes a simplified camera for use in this connexion. This camera has many good points, but they are outweighed by the fact that the microscope has to be taken to the camera every time a photograph is to be taken. We remember to have seen a handy photomicrographic camera on the market before the war, which not only produced negatives of small size (in this respect Dr. Coles's 1/16 quarter plate has a marked advantage), but possessed also the merit that it could be brought to the microscope and used in place of the observer's eye without any change of adjustment, provided the instrument was in the upright position. This is how a note-taking camera can most conveniently be used.

Dr. Coles gives useful chapters on colour screens, centreing, tube length, dark-ground illumination, staining and mounting, and other matters of practical interest. His book is a practical vade mecum, written by a skilled and experienced operator, whose opinion on all points is worthy of consideration and whose experience is placed freely at the service of his readers.

MANUAL OF MIDWIFERY.

Third edition. By HENRY JELLETT, M.D., F.R.C.P.I., late King's Professor of Midwifery, Trinity College, Dublin; ex-Master, Rotunda Hospital; and DAVID G. MADILL, M.B., B.Ch., B.A.O. Dub., Gynæcologist, Monkstown Hospital, Dublin, ex-Assistant Master, Rotunda Hospital, Dublin. London: Baillière, Tindall and Cox. 1921. With 20 plates and 540 other illustrations in the text. Pp. 1266. 42*s*.

As some eleven years have elapsed since the appearance of the second edition of this work a good deal of revision has been necessary. In this Dr. Jellett has had the advantage of the assistance of Dr. Madill. The book has been thoroughly revised and in large part rewritten. It still, however, maintains its characteristic features and is a most interesting record of the practice of the Dublin School of Obstetricians. The whole comprises some 1200 pages, and when we note that it is practicallythe same size as two of the most popular text-books on medicine and surgery respectively, we must conclude that it contains a very full exposition of the subject it deals with. At the same time it is a pity that authors cannot keep their text-books within a more manageable compass. It appears to us obvious that if the whole subject of medicine can be well and thoroughly discussed in a book of the same size as this, the much smaller and certainly less important subject of obstetrics might be quite adequately dealt with in a less bulky tome. We are not wishing to detract from the value of the book; we are only concerned with the unfortunate student who has to wade through these monumental text-books in the short time he has at his disposal for reading.

We notice a good many differences from the teaching given in the second edition; one would expect this to be so after an interval of so many years. In so well known a book, which has reached a third edition, it is unnecessary to do more than allude to a few of these. The description of the development of the membranes in the human ovum is still somewhat confused, as the author does not sufficiently distinguish between the facts as *known* in the lower animals and the condition which is *assumed* to occur in the human ovum. The description of the mechanism of labour in the vertex presentation has been revised and brought more up to date. The account of the management of the third stage and of the use of the Dublin method of expression is interesting, and affords a very clear guide to the proper method of conducting this stage of labour. We note, however, one curious statement—that the fundus of the

uterus before the separation of the placenta lies only slightly above the pubes!

Twilight sleep is not highly approved. The various methods of dealing with a face presentation are described well and in considerable detail. In dealing with shoulder presentations the author adopts the useful classification of Winckel. It is interesting to notice the recommendation of laparotomy in the treatment of an irreducible incarcerated retroverted gravid uterus. In considering the treatment of eclampsia, the use of morphia is recommended, combined with the administration of nothing but water by the mouth; only if, in spite of medical treatment, the condition of the patient is becoming worse should the uterus be emptied, after dilatation of the cervix with a hydrostatic bag or a mechanical dilator. Accouchement forcé and Cæsarean section are not recommended. In considering the treatment of placenta prævia, version as a general rule is advised. The figures of Döderlein are quoted as showing that the contention that an improved prognosis for both mother and child is obtained by the performance of Cæsarean section is not justified. The section on contracted pelves is particularly good. The figures are excellent and there is a full index.

This edition worthily maintains the high reputation achieved by former ones; the book is a very good one. The good results obtained at the Rotunda Hospital over a long series of years render these conclusions of the highest importance.

PSYCHO-ANALYSIS.

Psychanalysis in the Classroom. By GEORGE H. GREEN, B.Sc. Lond., B.Litt. Oxon. London: University of London Press, Ltd., and Hodder and Stoughton, Ltd. 1921. Pp. 176. 7*s.* 6*d.*

THE psycho-analytical method, first developed empirically as a means of medical treatment, has been extended to the general study of human thought and behaviour, and since analysts claim to find a mass of infantile material in the adult unconscious it was to be expected that the method would be specially applied to the study of educational problems and the life of the child. "Psychanalysis in the Classroom" (which, in spite of the spelling, is by an English educationist), is an attempt to give teachers and parents sufficient of the new teachings to enable them to understand the difficulties of the child and to assist him in making adaptations that will help towards happiness and success, not only in school life but in adult years. Mr. Green has given us a book in which sex is mentioned only in the final chapter. He describes the antagonisms and fixations of family life whilst making little use of the technical terms of analytical psychology or names derived from Greek story. Yet the reader familiar with psycho-analytical literature will recognise old friends in homely garb and will admit that within the limits the author sets himself he has done justice to the subject. Only one serious criticism must be made; he uses "repression" in a popular sense to indicate conscious control of one's desires or even control imposed from outside; as when he writes (p. 91), "Repression affords . . . gratification to the person who imposes it." This is confusing, for the psycho-analyst uses the word to indicate a process by which desires are thrust into the unconscious, the person concerned being unaware of their presence; control of these desires is lost and impulses from them may rise into consciousness to produce irrational actions or psycho-neurotic symptoms. Hence repression in the psycho-analytical sense is often associated with loss of control, and control is restored by bringing the repressed material into consciousness. Mr. Green himself gives illustrations of this process of restoring control by abolishing repression, which is the aim of psycho-analysis.

With this exception the book gives a fair exposition of the theory of the unconscious, which is presented in a palatable and easily digested form. "A man cannot go through the world successfully as a mother's boy, though many thousands are trying," is a fundamental proposition of psycho-analysis which Mr. Green illustrates by his own material; that the fear dream may be a wish fulfilment is intelligible in the light of his examples, and he has paid special attention to the phantasy-life of the child. The chief aim of education, according to Mr. Green, is "to discover the nature of the deep instinctive motives of children, and to train them from egoistic levels of expression to altruistic levels." He endeavours to show that this is not a platitude but that the training depends upon sublimation—a transfer of interest without change of motive; that sublimation is more effective when there is no consciousness of what is really being done, but that the teacher or parent can understand the instinctive motive of the child only by some familiarity with psycho-analytical principles.

Of medical interest is the case of a girl who suffered from eye trouble at the approach of each school examination; on each occasion the ophthalmologist gave instructions that she was to do no work till new glasses had been made; so she is "able to sit and build airy castles whilst her fellows actively compete against each other." It is disconcerting to feel that the author regards the ophthalmologist as concerned only with the eyes and not with the patient. The last chapter is a brief survey of the growth of the sex instinct and of its relation to life as a whole, and contains a warning that our traditional methods of handling the sex curiosity of the child lead to results which are the opposite of what we desire and expect. There is surely a negative omitted on p. 252, where we read "the instinct of hunger has necessarily been repressed," and on p. 207 "auristic" should be "autistic."

The work is one of the simplest accounts of psycho-analysis that have yet appeared, and the author has surmounted the objections that are often raised to presentations of the subject to lay readers.

The Problem of the Nervous Child. By ELIDA EVANS. With an introduction by C. G. JUNG, M.D., LL.D. London: Kegan Paul, Trench, Trubner and Co., Ltd. 1921. Pp. 299. 12*s.* 6*d.*

THIS volume, written by an American lady engaged in the psychological treatment of both children and adults, treats the problem from the standpoint of the Zurich School; an introduction by Dr. C. G. Jung describes essential principles clearly and briefly and is a help to the proper understanding of the book. Mrs. Evans, following Jung, regards the nervous child as suffering from a checking of the libido; treatment consists in directing its energies, partly by making the child's own motives conscious, but chiefly by altering the environment, so that the conflict between *what is* and *what is* (unconsciously) *desired* may be satisfactorily settled. This seems easy, but behind it lies the implication that the parent is often responsible for the neurosis, and throughout the book is the repeated plea for the protection of the child from the parent. That the tight grasp of overpowering authority must lead to effort to break away or must produce weaklings and failures is perhaps strong meat to the old-fashioned parent, though he would perhaps not fit the cap to the head; and it is stimulating to any parent to be told that "the manifestation of puberty which evokes the most perverse behaviour on the part of the parent is the child's first love affair." Extreme tenderness, according to this school, produces an equally bad effect, and the sweet and indulgent mother becomes the son's ideal of the dearest and loveliest woman; this is a rather too simple explanation of the *Œdipus complex*, but serves as an example of an infantile fixation of the libido that may lead to dependence upon childish ideals in adult life. The question of *when* a child should be told about sex matters is answered plainly (there seems general agreement nowadays that the child *should* be told); sex education must be faced as soon as questions are asked, otherwise all sorts of weird phantasies about sex may be passing through the child's mind.

The chief aspects of modern theory are dealt with; technical terms are avoided, and there is nothing that should offend the open-minded reader. Yet there are many defects: over-enthusiasm may be forgiven, but lack of coherence and accuracy is not atoned for by a picturesque style. We read the first chapter—Statement of the Problem—and find no problem stated; in fact, we are not sure what is meant by the "nervous child" except that he is an immature form of the nervous adult. On p. 166 the sentence ". . . loss of sex power, whether from castration, impotence, or sterility in the male, ovariotomy and barrenness in the female, leads to neurosis and degeneration . . ." leaves us wondering what is the difference between impotence and loss of sex power; moreover, analysts, as a rule, regard impotence as a result, or a constituent part, of a neurosis rather than a cause. The medical man, psycho-analyst or not, can only look amazed at the statement that "in the unconscious there is a secret which the aphasia victim is afraid of betraying, and he guards it by using inappropriate words," and hope that the writer does not mean what she says. Enthusiasm speaks on p. 55: ". . . the experienced psycho-analyst can clearly see during the narration of the patient's first dream the exact cause of the trouble"; then follows a warning against "telling the patient at the first interview the whole story of his neurosis." The first statement is likely to be repudiated by the experienced psycho-analyst himself, and the corollary is a warning against the impossible. Even these criticisms have their dangers, according to Mrs. Evans. On the title page of her book is the maxim "He who reads to criticise seeks only to hide his own defects, but he who reads for understanding will find the truth." To this the critic could answer that the maxim, even if true, must fail in its intent, for, as the author says elsewhere, "telling a person of a moral defect never cures him."

The Sex Factor in Human Life. By T. W. GALLOWAY, Ph.D. The American Social Hygiene Association. Pp. 142.

THIS book, written for American college students, is a plain-spoken discussion of the desire for sexual intercourse on the part of the male and of the need for its control and direction in the interests of the individual and of society. The book enables us to examine a non-analytical view of conduct, for Mr. Galloway regards the "sex factor" as being entirely on the conscious plane, and shows the influence of new ideas only by one casual reference to repressing desires into the "unconsciousness" (p. 36) and by the use of the word "sublimation" in a chapter title. Sublimation "implies that the individual has imagination enough to look ahead and to believe that it will pay in satisfaction to give up the present physical enjoyment for the later and larger social, more humane, and complete enjoyment" (p. 33). If the desire for enjoyment were the only motive for action—sexual or other—and the individual were fully aware of the motive and the results of the action, then the road to happiness would be clear. But love is blind, and even in other spheres than love neither exhortation nor reasoning suffices to control the urge of the unconscious motive. The author shows no knowledge of the view that the most effective sublimation is carried out unwittingly, and he would repudiate the explanation that his own interest in bringing happiness to youth may be a successful and desirable sublimation of one component of the sex instinct. The limitations of his views are best shown by the phrase (p. 114), "Inconsiderate coldness in sex relations on the part of the wife." This condemnation of "coldness," as if it were within the control of the sufferer and to be removed by a homily, is reminiscent of the father who threatened to chastise his family unless they were cheerful. "Coldness" (which is, perhaps, as common on the part of the husband as is "inconsiderate lust," though the author's narrow treatment of the "sex factor" does not allow this to appear) is, as he points out, destructive of home life, and his easy dismissal of its difficulties is sadly insufficient. Yet he could not do otherwise; he applies the principles of logical reasoning to the government of mental processes, and when these processes are inaccessible to reason he must surely fail. Shakespeare wrote:—

> "Affection,
> Mistress of passion, sways it to the mood
> Of what it likes or loathes"—
>
> *Merchant of Venice.*

and the passage from which this quotation comes presents so well the idea of the unconscious motive that we need not call upon psycho-analysis to refute the intellectualist fallacy as applied by Mr. Galloway to sex emotion.

Restraint, training, and guidance are necessary in regard to human action, whatever theories we hold; Mr. Galloway's efforts in this direction are all to the good, especially as he stresses the need that substitute outlets for sex energy should be useful socially, with satisfaction to the individual. The book is full of sound advice, and as a "straight talk to young men" on sexual indulgence should fulfil a purpose; but measured by its title it is disappointing.

TEETH AND HEALTH.

By THOMAS J. RYAN and EDWIN F. BOWERS. London and New York: G. P. Putnam's Sons. 1921. Pp. 264. 7*s.* 6*d.*

THE object of this book is to place before the lay reader the part played by the teeth in the maintenance of a normal standard of health. The authors, have, we think, been a little too ambitious and have produced a book which contains much detailed pathology and which in that way may weary the layman and defeat the object of the work. For example, there is a chapter extending to 30 pages on Focal Infection and another of 10 pages on "Why we need an X ray examination." In the latter chapter we are informed that if President Roosevelt had undergone a thorough X ray examination of his teeth by a competent dentist he might still be alive.

HISTORY OF SCIENCE.

Eminent Chemists of our Time. By BENJAMIN HARROW, Ph.D. London: T. Fisher Unwin, Ltd. 1921. Pp. 248. 9*s.*

Dr. Harrow is probably best known to British readers as the author of an illuminating little book called "From Newton to Einstein," which gives a most simple and intelligible account for non-mathematical readers of the theory of relativity. In this, his latest book, Dr. Harrow writes a series of short lives of eminent modern chemists, men whose researches have been of vast importance in pure science and also in commercial fields. Chemistry and chemical researches have a most curious way of becoming influential in regions which at first would appear to be quite outside the sphere of chemistry. No one, for instance, would have thought that the synthetic preparation of quinine would have any possible influence upon public health, bacteriology, agriculture, and explosives. Yet Perkin's researches into the synthesis of quinine led to the coal tar dyes whose use in bacteriology is known to all, while the discovery of alizarin and artificial indigo respectively nearly ruined the madder and indigo planters. Again, Madame Curie's work on radium upset all our preconceived theories of atoms, and when Ramsay found helium on this earth few would have thought of the possibility of its being used to produce the non-explosive airship. Romances such as these will be found in plenty in Dr. Harrow's pages.

Mediæval writers held that theology is the Queen of sciences, because theology is the knowledge of God, and such knowledge implies a knowledge of all His works. Much, however, still remains to be known, and theology is getting assistance on all sides. It is encouraging to look back and see how much light has been thrown of late years on many of the problems confronting us. When we think

of the work of Ramsay on the gases of the atmosphere, of Mendeléef on the periodic law (a law which had been to some extent foreseen by Newlands in 1866), of van't Hoff in stereo-chemistry, of Arrhenius on electrolytic dissociation, of Fischer on enzymes, of Richards on atomic weights and their relations, we see how the light is shining in dark places. Dr. Harrow says that he has ready for publication a second volume which deals wholly with the work of chemists, and we look forward with pleasure to its appearance.

Studies in the History and Method of Science. Edited by CHARLES SINGER. Vol. II. Oxford: At the Clarendon Press. 1921. Pp. 559. 48*s*.

THE first volume of this series appeared in the autumn of 1917 and was reviewed in our issue of Jan. 26th, 1918. The editor, Dr. Singer, who was unable, owing to his absence on military duty, to see the volume through the press, has been able to preside at the birth of Vol. II., and contributes an illuminating introduction dealing with the work now being done in the study of the history and philosophy of science, not only in this country but throughout Europe and the United States. Besides this introduction he has provided a discussion, which forms the opening paper of Vol. II. on Greek Biology and its Relation to the Rise of Modern Biology. Greek science, he points out, sprang from Greek philosophy and never lost direct touch with that philosophic stem; modern science, on the other hand, owes but little to philosophy, but grew from slow and painful observation and experiment.

Modern observers do not, as a rule, think; they try. Aristotle, though in many ways only a careful observer, laid down a rule which led men wrong until the time of Galileo—i.e., concerning falling bodies. He said, "We see that bodies which have a greater tendency of heaviness or lightness, if they are otherwise similar in shape, pass more quickly through the same space, and in the ratio which the magnitudes have to each other." Now Galileo *tried* his experiment with the ten pound weight and the one pound weight let fall from the top of the tower of Pisa and found that they reached the ground at the same moment. It is true that modern scientific workers sometimes have made a great discovery by thinking, as in the case of the discovery of Neptune by Leverrier and Adams working independently, but most of our recent advances follow on experiment. Aristotle was, however, a great and accurate observer in the field of biology, and Dr. Singer gives many instances of his work, notably that upon the development of the chick. Aristotle gave a good description of the generative process in cephalopods, known as hectocotylisation, though in another passage he contradicted this account, but the matter was not cleared up until Kölliker's observations. The process of sexual congress in the octopus was watched in a tank specimen and figured by Racovitza, whose illustration is reproduced on p. 46 of this volume, where the appearance of the male octopus irresistibly reminds the reader of Moore's "Veiled Prophet." Dr. Singer further discusses the botanical observations of Theophrastus compared with those of early modern botanists such as Highmore and Malpighi. His article is most interesting and beautifully illustrated.

All the 15 papers contained in this volume call for comment. Perhaps the most interesting of those to which we can only call attention, at least to a medical man, are that by Dr. E. T. Withington on the Asclepiadæ and the Priests of Æsculapius, and that by Mr. H. Hopstock on Leonardo as an Anatomist.

Dr. Withington discusses the vexed question as to whether the Asclepiadæ—i.e., the physicians, were so called because Hippocratic medicine had its rise in the temples of Æsculapius. Various scholars of great authority have answered this question in the affirmative, and various others of equal authority in the negative. Dr. Withington is with the latter and gives sound reasons for his belief. The anatomical and physiological papers of Leonardo da Vinci are preserved at Windsor and have been published and edited in the French, Italian, English, and German languages in Paris, Turin, and Christiania. Mr. Hopstock is one of the Norwegian editors of the "Quaderni d'Anatomia," published in six volumes at Christiania 1911-1916, and his article gives a vivid picture of Leonardo's genius in one of the many fields of knowledge wherein that astonishing man worked. Other papers are those of Mr. Robert Steele on Bacon and the State of Science in the Thirteenth Century, and Mr. Fabie's account of the Scientific Work of Galileo.

Dr. Singer is to be congratulated upon a most interesting volume, one which is in every way worthy of its dedication to the Memory of William Osler.

STRING FIGURES.

Second edition. By W. W. ROUSE BALL, Fellow of Trinity College, Cambridge. W. Heffer and Sons, Ltd. 1921. Pp. 69. 2*s*. 6*d*.

THERE is a period of convalescence when the eyes are weary of reading, when visitors seem infrequent or are excluded altogether, and when games that have to be played on boards, and even jig-saw puzzles, require a forbidden change of posture. It is then that detailed instructions which can be read aloud, enabling the patient to make representations, more or less recognisable, of familiar objects with no further apparatus than a piece of string six or seven feet long and his ten fingers will be welcome. The fact that most of the designs described in Mr. Rouse Ball's engaging little book have been learnt from Eskimos, Red Indians, from natives of Central Africa, the Pacific Islands, and the Torres Straits, and many other places, brings adventure to the bedside. The illustrations show clearly what is to be aimed at and the skill required for the simple patterns is not great. Especially useful would be this pleasant occupation to those whose fingers require re-education for whatever cause, and medical men might recommend the little book to many anxious mothers.

RESEARCH LABORATORY PAPERS.

Collected Papers from the Research Laboratory—Parke, Davis and Co., Detroit, Mich. By Dr. E. M. HOUGHTON, Director. Reprints, Vol. VII. Detroit. 1920. Pp. viii. + 490.

A SERIES of 49 reprints (Nos. 145—193) of original articles dealing with a wide range of medical, pharmaceutical, veterinary, pharmacognostical, and botanical subjects makes a volume of nearly 500 pages, well printed on good paper and illustrated by photographs and drawings where necessary. The Treatment of Burns by the Application of Paraffin, by G. I. Walters, shows that while paraffin gives consistently good results, yet the final effect varies with certain factors, which are discussed. Mr. Walters, to demonstrate the value of paraffin, quotes critical experiments and makes suggestions for the further improvement of this method of treatment by incorporating antiseptics and serum derivatives. Studies in Diphtheria Toxin, by L. Davis, deals with the conditions of hydrogen-ion concentration in a bouillon broth, which are most favourable for the production of a diphtheria toxin. The Cultivation of Medicinal Plants, by O. A. Farwell, discusses the kind of knowledge required for cultivation on a successful basis of various plants. Belladonna, henbane, digitalis, and hydrastis are considered in detail. A paper by M. C. Hall gives an account of exhaustive experiments made to determine the best methods for the Control of Lice on Horses, with especial reference to Winter Conditions. The use of coal-tar dips, of volatile substances such as methyl alcohol, of fatty and oily substances, including horse-fat, of powders such as naphthalene, and of fumigation with gases such as sulphur dioxide are considered in turn. Other sections are equally useful, and the whole volume, in fact, provides much interesting and suggestive reading.

JOURNALS.

British Journal of Experimental Pathology, Vol. II., No. 3, June, 1921.—Evans, C. L.: The Reaction of the Blood in Secondary Anæmia. Although the immediate effect of hæmorrhage is a lowering of the alkali reserve of the blood, the response of the respiratory centres may partially compensate, or even over-compensate, for this change, so that the circulating blood may be either more acid, or less acid, or of the same reaction after as before the hæmorrhage. After 12 hours the reduction in alkali reserve is compensated, owing to increased excretion of acid by the kidney; subsequently the alkali reserve of the blood may become higher than the normal and remain at this level until the corpuscular regeneration is complete. The response is a protective one against acidosis.—MacNalty, A. S.: The Morbid Histology, Bacteriology, and Experimental Pathology of Encephalitis Lethargica. A critical review.—Yorke, W., and Macfie, J. W. S.: The Mechanism of Autolysis in Paroxysmal Hæmoglobinuria. When the blood of a case of paroxysmal hæmoglobinuria was cooled at 0° C. for five minutes only, before warming at 37° C for one hour, the amount of hæmolysis which resulted was about ten times as great as that which occurred when the cooling was prolonged for 30 minutes. The explanation of this depends on the facts that in hæmoglobinuric serum immune body is greatly in excess of complement, and that sensitised red cells take up the mid-piece of the complement at 0° C., whereas the persensitised erythrocytes can only absorb end-piece at higher temperatures. Many more erythrocytes are sensitised after cooling for 30 minutes than for five minutes; consequently, mid-piece is diffused amongst a correspondingly greater number of sensitised erythrocytes. On warming, the concentration of end-piece available for each persensitised erythrocyte depends directly on the number of these, and when the number is very great (e.g., after cooling 30 minutes) the concentration is insufficient to produce lysis. The immune body erythrocyte reaction is reversible, but ceases to be so as soon as the erythrocytes have become persensitised. Experiments conducted with the object of determining whether the immune body is thermostable or thermolabile were inconclusive.—Fildes, P., and McIntosh, J.: An Improved Form of McIntosh and Fildes's Anaerobic Jar. The palladium-asbestos capsule of this apparatus is electrically heated to maintain its activity indefinitely.—Jensen, Vilh: A New Immersion Fluid. This is a mixture of liquid paraffin and *a*-bromnaphthalene adjusted to a refractive index of 1·515.—Douglas, S. R., and Fleming, A.: On the Antigenic Properties of Acetone-extracted Bacteria. (1) Acetone-extracted bacilli form a convenient way of storing bacilli and apparently keep their antigenic properties unchanged indefinitely. (2) They are very easily dissolved by tryptic and other proteolytic ferments. (3) When employed as vaccines, acetone-extracted bacilli appear to have antigenic properties fully as great as vaccines made by other methods. (4) They also form a very suitable antigen for use in complement-fixation tests. (5) Suspensions of these extracted bacilli are agglutinated by immune sera only after a long period and by dilutions more concentrated than is the case with suspensions of living or formolised bacilli. (6) Preliminary experiments appear to show that acetone-extracted bacilli which have been digested with trypsin when injected into animals produce a marked increase (equal to or greater than undigested bacilli) of the bactericidal power, but the increase of the agglutinating power is very much less marked.

American Journal of Ophthalmology, May, 1921.—A paper by M. Uribe-Troncoso, of New York, on the Physiologic Nature of the Schlemm Canal, reviews the various investigations regarding the function of this canal and reopens the old and protracted controversy as to whether it is a venous sinus or a lymph space. In 1873 Leber first advanced the view that Schlemm's canal is a venous sinus and this is the view almost universally held to-day. In this country it has received the support, among others, of Thomson Henderson. Uribe-Troncoso, however, relying largely on the work of Maggiore, of Rome, brings forward evidence to prove that the canal has the structure of a lymphatic, not of a vein, and concludes that the results of observing the irido-corneal angle in living eyes by the contact glass method of Fick and Salzmann, when the canal is found to contain clear fluid and not blood, further supports the lymphatic theory. A description is given of a method of collecting or measuring the fluids from the plexus around the limbus in the rabbit's eye. The low blood content indicates that the fluids thus obtained are largely of lymphatic origin. The paper is a very interesting one, and more work on this problem may be looked for now that methods of adequately examining the living eye with high magnifications are available.—Harold Gifford discusses shortly various methods of fixing the eyeball for operations upon it. Great differences in this respect are found in practice owing to the site of maximum efficiency for the puncture and counter-puncture in operations for cataract not being the same as for the cut. For this operation Gifford prefers to grasp the internal rectus tendon; he also gives his preferences for various other operative procedures.—A Study of the Etiology of Periodic Ophthalmia in Horses, by Lawrence Post, gives a short account of an investigation carried out in France during an epidemic among the horses of the British Forces in 1916. He concludes that the disease, which is characterised by interstitial keratitis, iritis, and vitreous opacities, is not transmitted by ordinary contagion, as no organism found in the conjunctivæ could be associated with the disease, and aqueous, vitreous, and blood cultures were found sterile.—J. Miltom Griscom, of Philadelphia, publishes a family tree of hereditary optic atrophy. In three generations of 33 persons there are eight males and six females affected and eight males and 11 females unaffected by the disease. Nine affected members have been very carefully examined, and descriptions of the fundus, fields of vision, and X ray appearances of the sellæ turcicæ are given. The reader should consult the original for details.—Other interesting papers are Traumatic Rupture of the Internal Carotid into the Cavernous Sinus, by Isaac Hartshorne; Self-inflicted Eye Injuries, by Marc Landolt; Injuries to the Eye with Report of 1051 Cases, by D. M. Campbell and J. M. Carter; and the Intraocular Foreign Body, by G. S. Derby.

The Optician and Scientific Instrument Maker, May 27th and June 3rd.—In the number dated May 27th Prof. F. J. Cheshire describes a new foco-collimator or apparatus for determining the focal length of any lens system. The usual collimator is a telescope with a system of wires at its focus, and is so arranged that an observer through another telescope, the optical axis of which coincides, can see the cross-wires in its focal plane. In the foco-collimator the system of wires is replaced by a scale subtending a known angle at the principal point of the collimating lens, and from this angle and the size of the image of the scale projected by a lens system the focal length of that lens system can be deduced.

Instruction in geometric optics is given by Mr. W. Swaine in a series of articles of which the third appears in the issue of June 3rd. In this issue also optical problems are propounded by Mr. E. Mayer, the Inverse Problem in Transposition, and optical solutions supplied to the questions of the recent examination of the Spectaclemaker's Company by Messrs. Laurance and Wood. A description is given of a Crookes-glass demonstrator. It is well-known that light rich in ultra-violet rays, passed through a fluorescent fluid such as quinine solution or a fluorescent screen such as is used in radiology, shows through a spectroscope a lengthening at the violet end. The invisible rays are made visible. In this appliance the light produced from a nichrome arc is projected on to a screen of uranium glass and the glass to be tested is then interposed. Its chief merit lies in conveniently providing a source of light rich in ultra-violet rays.

British Journal of Children's Diseases. Vol. XVIII. April–June. Edited by J. D. ROLLESTON, M.D.—In a paper entitled Some Remarks on the Diagnosis and Treatment of Congenital Syphilis, Dr. C. F. Marshall discusses the ætiological importance of congenital syphilis in affections of the different organs and the chief points in differential diagnosis. In his remarks on treatment, which is considered under the headings of ante-natal and post-natal treatment, Dr. Marshall states that ante-natal treatment, although diminishing fœtal mortality, may lead to an increase in the number of cases of late congenital syphilis. In his opinion combined treatment with mercury and salvarsan given during pregnancy only yields better results than treatment with mercury alone both before and during pregnancy, as regards the number of children born alive and free from symptoms at birth. Salvarsan appears to have little or no tendency to cause abortion when properly administered. As regards post-natal treatment, Dr. Marshall prefers intramuscular injection of salvarsan combined with glucose to diminish the pain to intravenous injection. He has never seen necrosis of the buttock, which has been urged as an objection to this method, and suggests that this occurrence may be due to too bulky injections or to mixture with creocamph. He recommends that mercury should be given simultaneously, either in the form of grey powder or inunction, and continued for a year at least.—In a paper on Diurnal Somnolence and Nocturnal Wakefulness as Manifestations of Lethargic Encephalitis Dr. H. Morley Fletcher describes two illustrative cases in boys aged 9 and 11 years. In his comments on these cases Dr. J. D. Rolleston remarks that nocturnal wakefulness as a sequel of lethargic encephalitis has recently formed the subject of numerous papers emanating from pædiatric and neurological clinics in Germany, Austria, Italy, and Switzerland, the features common to all the cases being the long duration of the symptom, its association with other manifestations of epidemic encephalitis, and the inefficacy of treatment. One of Dr. Morley Fletcher's cases was an example of the ambulatory type of lethargic encephalitis, of which several cases have been reported, especially in children. The nocturnal wakefulness in this case was a symptom, whereas in the second case it was a sequela.—Dr. F. Parkes Weber records a Fatal Case of Emaciation in a Girl at about the Period of Puberty, with General Visceroptosis, Hypotonicity of the Stomach, and Achylia Gastrica. No necropsy was performed.—In a paper on the Treatment of Prolapse of the Rectum in Infancy and Childhood by the Injection of Alcohol, Dr. Leonard Findlay describes a method which he learnt in Prof. D'Espine's clinic at Geneva, consisting in injection of 1·5 c.cm. of absolute alcohol into the submucous tissue on either side of the rectum under an anæsthetic. In 22 cases in children aged from 5 months to 7 years in which Dr. Findlay employed this method practically a complete cure was obtained. In several cases the prolapse returned, requiring a second injection, and in one child a third injection was necessary before a cure was obtained.—Dr. G. Cochrane describes a case of Diphtheria of the Penis with Paralytic Sequelæ, in which a boy aged 3½ years suffered from post-diphtheritic paralysis of a severe type, although the penis had been exclusively affected by diphtheria.—Mr. E. E. Hughes reports a case of Empyema of the Maxillary Antrum in an Infant aged 3 weeks, the condition probably originating in birth injury. Pus was evacuated through an incision in the upper alveolus, and in three weeks complete recovery took place.—The abstracts from current literature are devoted to acute infectious diseases and syphilis.

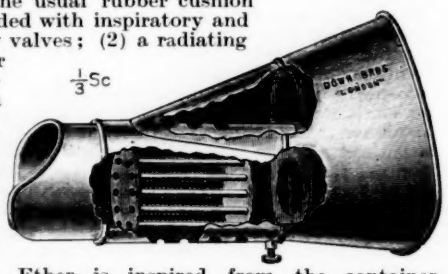
GREAT NORTHERN HOSPITAL.—The Great Northern Hospital of Recovery, at Grovelands, Old Southgate, London, N., will be opened by the Princess Royal, on Saturday, July 9th, at 3 P.M. A summer fête and country fair will be held in Grovelands Home Park, from 3 to 11 P.M.

New Inventions.

A COMPACT WARM ETHER INHALER.

THE advantages of warm ether vapour for anæsthesia by the open method are generally admitted; they were described by Dr. F. E. Shipway in this country in 1916,[1] and considerable experience was afforded later by the use of his apparatus at many clearing stations and hospitals during the war. A general discussion on the subject took place in the Section of Anæsthetics of the Royal Society of Medicine on April, 14th, 1916.[2] I have, however, felt the need of an inhaler of some kind which, being independent of an extraneous source of heat and not needing continuous air pumping, would be sufficiently compact to be easily accommodated in the anæsthetist's bag, and would yet warm the inspired vapour to a sufficient extent.

This inhaler, in which I have employed the device of utilising the heat of the patient's expired breath, resembles the small Roth-Dræger instrument and consists (see illustration) of three parts: (1) a face-piece carrying the usual rubber cushion and provided with inspiratory and expiratory valves; (2) a radiating chamber containing 19 thin metal tubes; (3) a container for sponge or gauze on which the ether is dropped.



Ether is inspired from the container through the warmed "radiator" tubes, while the expired breath is directed by the expiratory valve through a short passage into the radiating chamber where it passes between the tubes, to which it gives some of its heat, and escapes through holes in the opposite side. The radiator is locked to the face-piece by a small screw, and the container can be revolved into any convenient position for the dropping of ether. The inhaler is strictly of the semi-open type, but the air-way has been kept everywhere as free as possible to prevent restriction of breathing and promote interchange of heat; a slight amount of re-breathing is allowed by the volume of the face-piece, the in- and out-going streams being otherwise separate.

Without the radiating chamber in use the temperature of the inspired vapour above the face-piece is from 32° to 38° F. This is considerably lower than is shown by a thermometer under a Skinner's mask during "open" administration; but here the actual temperature is variable and uncertain owing to the fluctuation of the alternate warm and cold streams. On bringing the radiating chamber into use the temperature rises in the course of a few minutes to 65° to 70°, occasionally higher, generally rather above room temperature, and remains fairly steady. This is again not so high as can be obtained with an extraneous source of heat, but is, I think, sufficient for the purpose. There is a considerable economy of ether over the use of a mask, and a welcome diminution in the amount of ether in the air surrounding operator and anæsthetist. Anæsthetic mixtures can be used equally well if desired. The instrument is made entirely of metal except for the rubber cushion and the valve-flaps; it can therefore be readily sterilised. Its length is approximately 7 in. and its weight 13 oz.

It has been made for me by Messrs. Down Bros., St. Thomas's-street, London, S.E., to whom I am also indebted for the illustration.

St. Leonards. G. A. TICEHURST, M.B., B.C. Camb.

[1] THE LANCET, 1916, i., 70. [2] Ibid., 1916, i., 1001.

THE LANCET.

LONDON: SATURDAY, JULY 9, 1921.

National Insurance in the U.S.A.

THE question of National Health Insurance is awakening now the interest of the medical profession in America. That it has attracted the attention of such American bodies as would constitute what are here known as Approved Societies was proved by the visit to this country some two years ago of prominent officials of insurance and other similar bodies; but the various problems were at that time being approached rather from the standpoint of insurance than of health. The exposition of National Health Insurance in England by Dr. ALFRED COX, the medical secretary of the British Medical Association, recently published in the *Journal of the American Medical Association*, will therefore be of the greatest benefit to the medical profession in the United States, and it should be read by medical men of all nationalities where the adoption of a scheme of National Health Insurance is contemplated. Critics of the working of the medical benefit clauses of the National Insurance Act in England should also take to heart what, out of full knowledge, Dr. COX has to say on many difficult and contentious points, where comprehension is required before adjustment of difficulties can be advocated.

The National Insurance Act, 1911, was fully debated as regards principles when the legislation was introduced, but too little time was allowed for the working out of details, while defects which originated with haste, have continued, and in some directions have increased. We need only allude to the friction caused by certain of the revised regulations to show how hard has been the path of construction both for the Government and for those upon whom responsibility for working the Act devolves. The new medical record cards, which are assumed to represent each practitioner's correct panel list, fall far short of the assumption, while the information recorded on them is found by some to include too much for professional ethics, and by others too little for eugenic or statistical purposes. This is only an example of the directions in which a vast national constructive scheme may be seen to be tentative, and awaiting addition, revision, or pruning. It is hoped for their sake, and quite as much for our sake, that our American colleagues will be prompt in taking part in the discussions which will be essential if a scheme of National Health Insurance is introduced in the United States. They can learn from the mistakes of their British brethren to avoid many of the things which have been sources of annoyance with us, and which remain to breed discontent. The practitioners in America who may be called upon to work the scheme—the rank and file of the profession—ought to be organised so that their opinions may receive the consideration that will be given to views of reasonable unanimity, if they are reinforced by sound argument, and are directed to the good of the community and not confined to plans for professional security. This is the larger policy, for to obtain good medical service good conditions of work must be present. A hope may also be expressed that financial circumstances in the United States will allow of the formation of a more complete scheme than was possible in this country, with the concurrent upheavals of war. Shortage of money has resulted in our medical profession being the sufferers for many deficiencies in the British scheme. The lack of adequate facilities for institutional treatment, the failure to provide for second medical and surgical opinions, for nursing services, or for laboratory facilities have done much to keep alive the fiction that participation in panel practice is "derogatory." That the financial position has been improved in various directions no one denies, and that the health of the nation has benefited in existing circumstances is equally true; to these items on the credit side must be added the fact that the cost, in so far as sickness benefit is concerned, has been overestimated, as is proved by the recent valuation reports of the Approved Societies. All this indicates that, as time goes on and as experience ripens, our system of National Health Insurance will be found, once the need for such a service has been admitted, to contain the essentials for general success.

No doubt there are many practitioners in the United States, who, when new schemes are put forward, will be found wedded to their present routines of practice, and who will resent any interference with their lives. There will doubtless be also many of the laity who will, as many here do even now, view the services rendered under the National Health Insurance Act with suspicion. It may be assumed, however, that there will also be sufficient doctors able and willing, as here, to remove in time these suspicions—men who, however much they resent the profound changes in the practice of medicine will recognise not only the improvement in their economic position which the adoption of a scheme of health insurance must result in, but will be aware of the greater opportunities offered by such a scheme for the physical benefit of their patients. The Public Health Service of the United States is of excellent quality, the institutions, of which not the least is the Mayo Clinic, are well thought out and organised, and the universities are second to none in the world: provided, therefore, that adequate financial provision is made, there can be no reason why any sound scheme of National Health Insurance which the United States may adopt should not start at a point which we can only hope to reach after many years. We have much to offer in the way of example, while the scheme outlined in the Dawson Report might well form the basis of a complete service in any civilised country. There seems to be in the United States ample time for consideration by all concerned, so that a system may be fairly expected which by its very completeness would disarm criticism, ensure the benefit of the community, and secure the goodwill of the medical profession.

Silicosis.

THE paths of research are tortuous and often lead away into unexpected lands from which the pioneer cannot hope soon to return with what he set forth to seek. Often he finally returns with an entirely different, although, perhaps, an even more valuable commodity. In his address to the Research Defence Society, which we publish on p. 112 of our present

issue, Dr. H. H. DALE describes how certain explorers went forth into the wilderness to seek one clad in soft tissues, the tetanus bacillus—and, behold, more than the tetanus bacillus, even the *raison d'être* of tuberculous silicosis, was there. It is almost a fairy story with Pan in the background. Dr. W. E. GYE, in the course of investigations on tetanus, found that the bacilli flourished in the body and caused disease only if introduced together with soil. Next, Dr. GYE in association with Dr. W. CRAMER, discovered that the soil must contain either soluble calcium salts or hydrated soluble silica. Further, injection of either of these substances into mice rendered them sensitive to the disease when inoculated with washed tetanus bacilli which were otherwise innocuous. Here nearly certainly lies the explanation of why on the Western front the prevalence of tetanus varied so much in different parts of the line; it varied with the chemical composition of the soil. At once a vista of a connexion between geology and disease is opened up; and Dr. S. BARWISE's correlation between the prevalence of phthisis in Derbyshire and the geology of the county immediately comes to mind. Here the first chapter may be said to end.

Then suddenly Dr. GYE stumbled upon a hyperconcentrated solution of vital statistics from which only a touch from the experimental wand was needed to precipitate clear crystals of knowledge. The work of Dr. J. S. HALDANE upon dust inhalation and the statistical evidence placed by Prof. E. L. COLLIS before the Royal Commission on Metalliferous Mines and Quarries, which is summarised in his Milroy lectures, had established definitely that silica alone among dusts possessed the peculiar power of sensitising to tuberculosis those who inhaled it over long periods. Even as GYE was at work COLLIS,[1] who for years has opposed the old accepted theory that mechanical irritation following upon dust inhalation was the cause of dust-phthisis, and has pointed out that this theory was incapable of explaining why the disease only occurred among those inhaling silica dust and not among those inhaling other equally hard and irritating particles, such as emery, was writing: "Theory rather suggests that when silica is introduced into the body some definite chemical reaction should occur . . . a reaction which results in the formation of fibrous tissue, now known pathologically as silicosis. Lungs so damaged fall a ready prey to the tubercle bacillus." Dr. GYE had sensitised mice to tetanus with silicic acid. What about tubercle, to which these animals are normally immune? After experiments in association with Dr. E. H. KETTLE, he is now able to announce that silicic acid (and even silica dust) also sensitises these animals to tubercle, which spreads in the tissues injured by the silica. We have then only to conceive that silica dust when introduced into the body slowly undergoes conversion into silicic acid to understand the ætiology of tuberculous silicosis; and W. WATKINS-PITCHFORD has pointed out that inhaled particles of silica do so disintegrate in the lungs. Nor is further evidence lacking; for mice injected with silicic acid suffer from nephritis, while COLLIS has noted that in occupations, such as tin-mining, dressing sandstone, and grinding cutlery, where tuberculous silicosis is rife, the mortality from Bright's disease is high. The conclusions to be drawn are that fine particles of silica, derived from flint, sandstone, quartz, or quartzite, gradually undergo conversion in the body into soluble hydrated silica; that this substance as formed acts locally on the tissues in the vicinity, giving rise to fibrous new growth, possibly even stimulated to do this by the presence of tubercle bacilli which, WATKINS-PITCHFORD has pointed out, will precipitate latent silicosis; that tuberculous infection finds in such silicotic tissue a favourable nidus for growth; and that any soluble hydrated silica which gains access to the blood stream is excreted by the kidneys which are affected by it.

These fresh conclusions come when research has hardly yet familiarised us with the ideas that in the treatment of phthisis the value of cod-liver oil and other animal fats depends upon the presence in them of the food accessory factor, fat-soluble A; and that, envisaged from this aspect, phthisis may be regarded as disease occurring among persons sensitised by dietetic deficiency. Now we learn that sensitisation may also result from an inorganic poison. Simultaneously another member of the Medical Research staff, Dr. LEONARD HILL, is attacking the problem from another side by establishing the way in which health and vigour, needed to resist disease, can be increased by increased metabolic activity brought about by stimulating atmospheric conditions. In each case the problem of tuberculosis is being removed from the bacteriological laboratory to that of the biochemist in association with the morbid histologist. Only time and further research can reveal how the flood of light, shed by new knowledge on the way in which the human body may be sensitised to the tubercle bacillus or protected against it, can be put to immediate practical use for preventing tuberculous silicosis in those industries in which it prevails. The recent inclusion of the disease under the Workmen's Compensation (Silicosis) Act, 1918, as one for which compensation must be paid (as the industries concerned are one after another brought by order of the Secretary of State under the provisions of the Act), gives immediate financial importance to such an aspect of the case in this country. In South Africa the financial side of the question has long been apparent. If, in the light of the new knowledge, means can be devised to abolish the disease, a financial burden will be lifted from industry far exceeding the whole sum devoted to-day to medical research, while a scourge will be removed from certain occupations which has clung to them through the ages since man began to make for himself instruments from flint or to dress sandstone for building purposes.

[1] The Influence of Dust Inhalation upon the Incidence of Phthisis, Public Health, March, 1921.

Freudism in Medicine.

THE place of psycho-analysis in the equipment of the practitioner of medicine demands attention. Though few medical men past middle age can swallow the new psychology whole without symptoms of indigestion, culminating, it may be, in spiritual if not physical nausea, the younger generation is imbibing the newer ideas with avidity. In the past the psychologist has taken his samples for analysis from the surface of an apparently clear stream, in the belief that it was sufficiently representative of the water as a whole. The moderns scrape up mud from the bottom, if necessary displacing the filtering stones to secure it. To the onlooker this method would seem no better than the first, and, moreover, it leaves the stream very muddy. Nevertheless, in the light of the experience now being gained, future psychologists, made wiser through the errors and omissions of their

predecessors, may be enabled to estimate the practical importance of traces of sediment contained in the preliminary sample, delving deeper only when circumstances demand it. At the moment it is mainly the recently qualified medical men and women, with a sprinkling of medical students, who are keenly interested in psycho-analytical methods. The epidemic form of psycho-analysis to which certain sections of medical students have fallen victim owes its existence partly to the feeling—possibly an illusion—that by submitting to analysis the student is preparing himself on the broadest lines for a medical career; it may partly, and unknown to him, have a different origin. But, manifestly, the gap between medicine and the later developments of psycho-analysis is so wide that at present only the more elementary presentations of psycho-analytical ideas are intelligible on the surface. We must not for this reason allow a whole method of therapeutics to slip out of our grasp.

There are two main difficulties in accepting FREUD's theories. The theory of the unconscious explains conduct as arising from motives, and even trains of thought, which are not apparent to consciousness or under its control. Psychologists had prepared the way by showing how we are ruled by instinct and emotion; yet the personal application of this theory of the unconscious, with its seeming dethronement of reason, is repudiated by our common sense, which tells us that we know, or ought to know, the reasons for all our actions, and that conduct is based upon rational motives derived from the principles of conscious pleasure and pain. The second difficulty lies in FREUD's view that infantile psycho-sexual development has influence not only upon the psycho-neuroses but upon ordinary inclinations and desires. To this difficulty many factors contribute, one of the chief being the confusion between sexual activity and action urged by the sex instinct; the first is unusual in an infant, the second may be usual in all infants. The difference between the views of FREUD and JUNG are well known. FREUD, whilst admitting the existence of other instincts, finds the sex instinct predominant in influencing life and character, and regards the unconscious working of that instinct, with its many ramifications, as the foundation of the psycho-neuroses. JUNG regards the driving force of mental life, the libido, as the mainspring of good and evil; a wrong mental attitude, traceable to difficulties in childhood and often first appearing at that time, hinders adjustment, and the libido, checked in its natural outlet but still demanding satisfaction, turns to the production of the neurotic symptom as a means of finding it. To JUNG sex is only one manifestation of the libido, but is so all-pervading that the libido makes great use of it as a means of expression. JUNG claims to find, behind the sex mechanisms described by FREUD, a misdirection of libido expressed in the neurotic symptom. He also finds in the symptom, as in the dream, indications of the striving of the libido and of the direction in which it should seek an outlet. Hence he claims to be more constructive than FREUD. The time has come when the practitioner must take a serious interest in these considerations, unless he is to lose touch with the more thoughtful section of his patients, for their influence on the lay public is widespread.

A letter appears in another column from that wise physician and experienced man of affairs, Sir BRYAN DONKIN, which we hope will be read carefully. It is not in agreement with the views expressed above, but it proves how necessary it is that those who are working along the lines of FREUD should temper their zeal with discretion, should appreciate at what point they desire to leave the old course, and should be able to show their reasons for so doing, in order to give proper attribution to any successes with which they may meet. The methods of experimental psychology will never be deserted, but assistance to our therapeutics must not be refused because it does not arise directly out of such methods. On the other hand, we have a right to ask that the theories, precepts, and claims of psycho-analysis should continue to undergo rigorous scrutiny; for psycho-analysis is a new acquaintance, not an old and well-tried friend.

M.O.H. REPORTS.

MOST of the annual reports of medical officers of health commented on in THE LANCET hold strong resemblances in certain particulars. The general death-rates and infant mortality-rates for 1920 are low, frequently the lowest ever recorded. There was a widespread increase of mortality from tuberculosis of the lungs during the war, but it is surprising to find that not only has this war increase disappeared, but that the death-rates are now lower than ever before, at a time when overcrowding is general. It is doubtful if the war increase and the subsequent decline have been properly explained. The usual explanation is that the increase was largely industrial; men and women who were not inured to factory life broke down under the strain, their age or state of health perhaps unfitting them for the work they attempted. On the other hand, it is notorious that many women who worked in factories apparently improved in health owing to provision by canteen of much more sensible dietary than they were previously accustomed to. On the whole it may be said that during the war the working man, woman, and child had a more plentiful dietary than usual. Children among the poorer sections of the community were better clothed and apparently better fed; they had less sugar, but made up for it with more starch. The question arises as to whether the greater tendency to consumption resulted from the quality of the food—i.e., the scarcity of the right kind of fat. Research on vitamins emphasises the importance of butter, suet, dripping, egg yolk, and cod-liver oil in preventing rickets and securing good teeth. The past reputation of cod-liver oil as a remedy for tuberculosis and its extraordinary richness in the fat-soluble A vitamin naturally suggest that its value in this direction may be due to its vitamin content, and that scarcity of the other fats which are plentifully endowed with this vitamin may have played a part in the war increase of tuberculosis; a better supply of these fats has been available since the end of the war. It has also been suggested that a large number of tuberculous persons died in the influenza epidemic, and that the present low death-rate is only temporary. A rise is perhaps unavoidable if overcrowding continues to increase in the present geometrical progression resultant upon our inability to build houses to accommodate the natural increase of the population. The effect of education of the public by means of tuberculosis dispensaries and other health agencies must not be ignored; moreover, the recorded experience of many, if not most, tuberculosis dispensaries, is that consumptives escaped influenza in a remarkable manner, perhaps because they led a more or less open-air life, and avoided crowded rooms. The incidence of tuberculosis during and since the war has not been satisfactorily explained, and offers a field of investigation to statisticians with a knowledge of public health.

THE Right Hon. F. B. Mildmay, M.P., has been appointed a member of the Medical Research Council, in succession to the Hon. Edward Wood, M.P. Mr. Mildmay will act as Treasurer to the Council.

Annotations.

"Ne quid nimis."

MEDICINE IN EVOLUTION.

THE learned Professor of Physic in the University of Cambridge, Sir Clifford Allbutt, in a volume of essays and addresses,[1] which has appeared this week, illustrates in a remarkable way, though the book has no such design, that the story of medicine is one of evolutionary progress, the progress having been held-up by world events in this or that direction, to re-take or re-shape its course, quickly or slowly, but always advancing. The first half of the book consists of the FitzPatrick lectures, delivered before the Royal College of Physicians of London in 1909–1910. The lectures, however, have been considerably enlarged, as anyone will see who refers to their original publication in our columns, and they have appreciated in interest and value in proportion to the enlargement, which is an unusual circumstance in work of a scholarly and serious nature. Time after time the learned address, as delivered, is greatly improved in force and directness by abridgment, but in the case of Sir Clifford Allbutt's FitzPatrick lectures it is good to possess not only the original words, but also a great deal of the documentary background. Sir Clifford Allbutt once likened medical history to a geological record, but he now prefers to compare its noble fragments to a basilica compiled of more ancient relics—of pillars, of capitals, wrought stones, and mosaic, gathered and built into a new edifice. "We have thrust ancient myth and symbol too much aside as wholly fanciful; we are discovering now that they are apparitions, luminous mists of truth—the edges and bordering lights growing in form from one incarnation to another."

The subject of the FitzPatrick lectures was primitive Roman medicine in relation to the medicine of Greece, and over the whole of this field Sir Clifford Allbutt displays a wide range of erudition and an intimate acquaintance with the writings of other historians, while his position at Cambridge has enabled him to obtain assistance on particular points from such authorities as Prof. Henry Jackson, Prof. J. S. Reid, Mr. Bernard Cook, and Sir John Sandys. While the Roman Empire held the political supremacy, Athens, in almost all the higher ranges of the human mind, was still supreme, says Sir Clifford Allbutt. He refers to the address of the late Dr. Warde Fowler, president of the Classical Association for last year, in which that charming and polished scholar and naturalist—now, alas, passed from us—deprecated the common idea that the Romans lacked imagination as compared with the Greeks. Sir Clifford Allbutt fears in his pages that "Mr. Fowler will see but evidence the more of that conventional depreciation of the Roman in comparison with the Greek"; but he appeals for extenuation inasmuch as he has had to deal with a side of the Roman mind in which that great people was deficient. Medicine at Rome was, of course, Greek, and consequently such superior persons as Cato and Pliny, who looked down upon everything Greek, looked down also upon medicine and medical men, a very similar view being taken in Italy some thousand years later by Petrarch. The remainder of the book is a series of essays and addresses upon such varying subjects as Byzantine medicine; mediæval medical learning, illustrated by the position of the ancient University of Salerno; the growth of hospitals and the development of public medical service; medicine in the fifteenth century and at the beginning of the nineteenth century; and Palissy, the savant and potter.

[1] Greek Medicine in Rome: the FitzPatrick Lectures for 1909–1910, with other Historical Essays. By the Right Honourable Sir T. Clifford Allbutt, K.C.B., M.D., F.R.C.P., Regius Professor of Physic in the University of Cambridge. London: Macmillan and Co. 1921. Pp. 633. 30s.

The book is frankly an assembling of scattered essays and addresses, but every word is written in support of the thesis that medicine steadily evolves towards scientific wisdom and truth.

THE IRREGULAR INCIDENCE OF PLAGUE IN INDIA.

PLAGUE, as our readers are aware, has been annually epidemic in India since 1896, but the incidence of the disease during that period has been very unequal, some provinces, like the Punjab, having had devastating epidemics year after year, while others, like the Presidency of Madras, have experienced comparatively light local manifestations of the malady, while yet others, like Assam, may be said to have escaped almost entirely, notwithstanding repeated importations of the disease from other heavily infected provinces. Various explanations of this unequal distribution have been advanced from time to time. Up to the present the explanation which found most acceptance was that the small incidence of plague in some provinces was due partly to the manners and customs of the people, and partly to the fact that the nature of the construction of their dwellings did not favour infestation by rats. Meanwhile the subject for some time has been undergoing investigation, particularly in the Presidency of Madras, in which the various conditions have been carefully studied and compared with those in other provinces, but so far without any convincing results.

A new hypothesis, however, has been put forward recently by Major F. W. Cragg, I.M.S., Assistant Director, Central Research Institute, Kasauli, in a contribution published in the lately issued Special Indian Science Congress number of the *Indian Journal of Medical Research*, in which is discussed the distribution of the Indian rat-fleas of the genus Xenopsylla, with reference to the immunity of certain areas from plague epidemics. It appears that the Plague Commission during the whole period of their inquiry recognised only one species of the genus Xenopsylla—viz., *X. cheopis* on Indian rats, and until recently this flea was universally regarded as the predominant species infesting rats in tropical and sub-tropical climates. At least two other species of Xenopsylla, however, are found in India—viz., *X. astia* and *X. brasiliensis*. The differentiation of the species is not easy, requiring the use of a compound miscroscope and a fairly high power. It is by no means the case that all species of fleas, even those of the same genus, are necessarily equally efficient as transmitters of the plague infection. One important factor which may vary with species is the degree of readiness by which the species adopts man as a host in the absence of its normal one. It has been shown experimentally that all fleas are not alike in this respect. A species of rat-flea which is reluctant to bite man, and which perhaps prefers some other animal when its normal host is unavailable, is not likely to be a serious factor in the spread of plague. The length of life, rapidity of reproduction, and the duration of the early stages are all closely dependent on conditions of temperature and humidity; but, according to Major Cragg, the optimum conditions are not the same for all fleas. The powers of resistance to unfavourable conditions, such as extremes of heat and cold, lack of food, and so on, all affect, to some extent, the importance of a species as an agent in the diffusion of plague, and this capacity may be expected to vary in different species. The probability of there being several species of the genus Xenopsylla, each with its own optimum conditions, and each, perhaps, having from various causes a different degree of effectiveness as a transmitter of plague, has not hitherto, it seems, received due consideration. In the *Journal of Hygiene* (Vol. XV.) W. M. Philip and L. F. Hirst, in a report on plague during 1916 in Ceylon, stated that the predominant rat-flea in Colombo was *X. astia*, which they point out bites man with reluctance at

temperatures above 80° F., and it rarely attacks the guinea-pig, which animal, it may be remembered, was used by the Plague Commission as a trap for rat-fleas at Bombay. It is said that in Ceylon actual transmission of plague from rat to man by *X. astia* was carried out with the greatest difficulty. The infecting organism at Colombo was highly virulent, the human and the rat population were susceptible, and both rats and their fleas were sufficiently numerous; but yet notwithstanding the presence of all these factors the incidence of plague in man was comparatively little, the relative inefficiency of *X. astia* as a carrier of plague being regarded as one of the possible causes of the failure of the malady to spread in Ceylon. It may be mentioned that W. M. Philip and L. F. Hirst made a collection of rat-fleas from various areas, and those obtained from Madras city (where plague has practically never spread though often imported into it), all proved to be *X. astia*. Major Cragg, therefore, concludes that if the predominance of this species of flea on the Ceylon rats is associated with a low plague incidence there in man, it is probable that the plague-free districts of India may owe their immunity to the predominance in them of this same species of rat-flea. Accordingly, with a view to decide the point, Major Cragg has obtained the coöperation of the Sanitary Commissioner with the Government of India in the carrying out of an investigation into the identity and distribution of the species of rat-fleas predominant in the various districts of India, and for this purpose he has secured the assistance of a number of civil surgeons, health officers, plague officials, and others in different parts of India. The inquiry, we understand, has only been in progress for about two months, and it is therefore too soon as yet to expect any definite conclusions. It has, however, been found so far that *X. cheopis* is the predominant species in the cooler parts of India and *X. astia* in the warm and damp regions. On the other hand, *X. brasiliensis* is not common; it has only been found at Poona, Mangalore, Bombay city, and Ootacamund. Major Cragg intends to find out the distribution of each of the species of Xenopsylla and their seasonal prevalence. Should *X. astia* prove in fact to be the rat-flea of the immune areas in India, he will test experimentally its effectiveness as a carrier of plague as compared with *X. cheopis* and under varying climatic conditions. If it should be shown experimentally that *X. astia* can act as a carrier of plague to any degree, it will become necessary to investigate its life-history and bionomics in order to explain why it does not act as such in nature.

These systematic investigations may, in one way or another, throw light on some of the problems of plague which still baffle the epidemiologist.

THE OCULO-MOTOR NUCLEI AND THEIR TRACTS.

BRITISH ophthalmic surgeons recently have directed a good deal of attention to problems connected with the oculo-motor nuclei and their tracts. At the Oxford Ophthalmological Congress last year Mr. Richardson Cross took as the subject of the Doyne Memorial Lecture the Nerve Paths and Centres Concerned with Sight," and gave a very full and clear account of the human and comparative anatomy of the parts. Last March the Neurological and Ophthalmological sections of the Royal Society of Medicine held a joint debate[1] covering much the same ground on the neurological aspect of which we commented at the time. The introductory papers to this debate by Dr. Gordon Holmes and Mr. Leslie Paton, which appear in full in the June number of the *British Journal of Ophthalmology*, deserve careful study from the ophthalmological point of view. Mr. Paton divides his paper on ocular palsies into two parts, (1) anatomical; (2) clinical. In the anatomical section he gives a clear digest of the facts known regarding the position, inter-relations, and functions of the nuclei of the third, fourth, and sixth nerves, and discusses the views that have been advanced as to the distribution within the nuclei of the various muscle groups. Very diverse views are held, for example, as to the position in the third nerve nuclei of the cells concerned in the innervation of the sphincter pupillæ. The text-book description, based on Bernheimer, places them in the small-celled mesial group at the anterior end of the nucleus, but much of the recent work done has failed to confirm this, and Magitot actually suggests, in support of Gaskell's theory, that sphincter control is not a function of the oculo-motor nucleus at all, but, through the continuation upwards of the intermedio-lateral tract of the cord, of the sympathetic system. A good account, illustrated with diagrams, is given of the posterior longitudinal bundle, that puzzling but important tract wherein lies the mechanism of association of the whole ocular system. The vascular supply is also discussed in detail and the significance of the supply of these nuclei by end-arteries is emphasised. In the clinical part a full classification of ophthalmoplegias is attempted, and certain typical examples, illustrative of particular groups, are described in some detail. Encephalitis lethargica is taken as an example of infective ophthalmoplegia, and Mr. Paton draws attention to the correspondence between the eye muscles affected in this disease and those which get out of control, as it were, on falling into ordinary sleep. Failing accommodation, dilating pupils, difficulty in convergence, and ptosis, as well as unconsciousness, are common to both states. The three types of lesion revealed microscopically in this disease congregated, as a rule, in the region of the aqueduct of Sylvius, are well described, and this section furnishes ophthalmologists with a good summary of this new disease.

Dr. Holmes's paper is entitled "Palsies of the Conjugate Ocular Movements." He gives a good description of the cortical centres and of the stream of peripheral stimuli that maintains their tonic activity. The evidence for the centre in the second frontal gyrus in man and animals is detailed. It is well known that irritative lesions in this area cause clonic conjugate movements of the eyes to the opposite side, and paresis of the mechanism of voluntary lateral deviation has also been described after war wounds. Dr. Holmes concludes there is no evidence of an oculo-motor centre in the parietal lobe (angular gyrus) in man, but he has observed ocular apraxia without associated disturbances of spatial orientation to follow gunshot wounds in this neighbourhood. He considers the conjugate eye movements obtained by Schäfer through stimulation of the visual area in the occipital lobe, to be reflexes arising from a desire to fix the eyes on the point in space to which the cortical sensations induced by the stimulation are projected. He regards the visual cortex as a higher ocular reflex centre as well as a perceptive area, and believes that movements other than willed and purposive ones, such as those by which the eyes follow a moving body or those by which objects perceived in the periphery of the field of vision are brought into central vision, are effected through it. The paretic deviation towards the seeing side in hemianopia can thus be explained as due to loss of visual impressions that normally excite reflex activity. The question of paralysis of the conjugate lateral movements of the eyes is very ably discussed. This symptom is associated with disease in the lower and dorsal part of the pons, especially near to the abducens nucleus of the same side. Both abducens and oculo-motor nuclei are involved, and the origin of the fibres in the posterior longitudinal bundle, conveying the impulses that excite conjugate lateral movements, has been investigated. Dr. Holmes inclines to the view that a supranuclear centre exists, and gives the evidence in its favour. The last section of the paper discusses paralysis of the vertical conjugate movements

[1] THE LANCET, 1921, i., 718.

and the conclusion is reached that supranuclear mechanisms are present here also. Dr. Holmes supposes the existence in the upper end of the mid-brain, at a higher physiological level than the oculo-motor nuclei, of "a more complex associational or co-ordinating mechanism which receives all the impulses that can effect vertical or convergent conjugate movements of the eyes, combines and correlates them into an appropriate resultant, and distributes this to the nuclei of those muscles that should contract or relax." This view is undoubtedly the simplest explanation of all the facts and the mechanism postulated would correspond to the intercalated neurone in the cord between the afferent reflex fibres and the motor cells of the ventral horns.

ANTARCTIC BACTERIA.

Sir Ernest Shackleton's prospective visit to the Antarctic has revived interest in the conditions of any form of life in these fascinating regions. It might well be supposed that active manifestations of bacterial life would be impossible under the inhospitable conditions of Antarctic glaciation and at temperatures which rarely rise to freezing point. The researches of more than one observer, however, show that such a supposition is erroneous. Dr. A. L. McLean, who accompanied Sir Douglas Mawson's Australasian Antarctic expedition, is the latest to publish[1] the results of his bacteriological observations, carried on during the three years preceding the war, and they serve to confirm those of previous workers in this field. It is astonishing to find that the snow and solid ice covering the Southern Continent are by no means destitute of bacterial life. Portions of ice collected, with strict precautions, not only on the surface but at a depth of many feet, were found to contain living bacteria of various kinds; motility was observed on thawing and successful cultures were obtained. It is conjectured that the strong current of air which is known to flow at great altitudes from the Equator to the Pole, carries with it from warmer regions not only dust particles, but living bacteria, which ultimately become precipitated upon the polar ice-cap. Dr. McLean collected falling snow in a sterilised vessel, and proved it to contain living organisms. It has long been known from laboratory experiments that no degree of cold yet attained will kill bacteria, but it might well be thought that they must remain dormant when embedded in glacier ice. At very low temperatures this is doubtless the case, but the structure of such ice, first elucidated in the Alps and confirmed by Antarctic observation, indicates conditions under which bacterial growth seems possible at temperatures some degrees below freezing point. For when water freezes crystals of pure water are formed, and any salts in solution remain in the residual fluid, which thus comes to have a lower freezing point, and when this is reached the process is repeated. Thus glacier ice comes to consist of a mosaic of pure water crystals, separated and permeated by channels containing saline and organic impurities. At a sufficiently low temperature the whole is a solid block, but as the melting point is approached the channels reopen and the ice takes on a granular structure. It is in these channels that bacteria appear able to grow even when the temperature is below freezing point. If they can thus maintain their existence in ice, it is not surprising to find that bacteria are present, in the Antarctic, in sea water, in the mud of moraines, and in the ooze from the sea bottom: Dr. McLean found them in ooze from a depth of 300 fathoms. The nature and properties of these organisms could not be worked out in detail, but when we remember that the bacteria of air, water, and soil have received little attention even in temperate climates in comparison with those of the animal body, we shall not think it any discredit that the descriptions do not often allow us to place the organisms with any certainty in our schemes of classification. Nothing indeed was possible, under the arduous conditions in which the work was carried on, beyond noting morphology, Gram-staining, and rough cultural characters.

When we turn to the bacteriology of the animals inhabiting the Antarctic, we are on more familiar ground. Dr. McLean made large numbers of cultures from the intestines of mammals, birds, and fish. In some cases negative results were noted, and it appears that the intestine, in these regions, is definitely poorer in bacteria than is the case in warmer climates, though intestinal worms and external parasites were numerous. Nevertheless bacteria were commonly present, and it is interesting to note that a Gram-negative, sporing bacillus was grown from the intestine of a fish trawled from a depth of 1700 fathoms. Seals furnished consistently positive results, yielding coliform and other organisms. It is noteworthy that pus from the wounds which these animals receive in fighting amongst themselves was found to contain staphylococci and streptococci of familiar types. Dr. McLean's report leaves us with an increased respect for the pertinacity and versatility of bacterial life under the most unfavourable conditions, and with no less admiration for the perseverance with which, under conditions hardly less unfavourable, he contrived to make so many interesting observations.

[1] Australasian Antarctic Expedition (1911–1914). Scientific Reports, Series C, Zoology and Botany, vol. vii., part 4. Bacteriological and Other Researches. By A. L. McLean, B.A., M.D. Issued Nov. 1st, 1919. Sydney. Price 16s.

CÆSAREAN SECTION: TWENTY-ONE YEARS' EXPERIENCE.

IN the Jerome Cochran lecture read before the Medical Association of the State of Alabama, Dr. J. Whitridge Williams[1] gives the following analysis of 183 Cæsarean sections performed upon 145 women in the Obstetrical Department of the Johns Hopkins Hospital from Feb. 1st, 1899, to the end of December, 1920. The operations were done on a series of approximately 20,000 deliveries, so that their incidence was somewhat under 1 per cent.; 104 were single and 79 repeated sections. Although the number of white and black women in the service was practically the same, many more Cæsarean sections were done upon the latter. The following types of operations were done: 121 typical conservative sections; 4 extra-peritoneal sections; 1 post-mortem section; 57 Porro sections. The gross mortality was 5·46 per cent., which was reduced to 3·45 per cent. after deducting the cases in which death was not due to the operation. All the deaths except one from hæmorrhage were due to infection. The mortality was 13 times greater in the first 50 than in the last 133 cases—10 to 0·77 per cent., the diminution being due to the avoidance of ascending infection by operating before the onset or during the first hours of labour. Contracted pelvis was the indication for interference in nine-tenths of the black women and in six-tenths of the white patients. The several varieties of rachitic pelvis afforded the principal indication for operation in the blacks, as compared with the simple flat pelvis in the whites. The most frequent non-pelvic indications were eclampsia and severe cardiac decompensation. On the other hand, Dr. Williams does not regard Cæsarean section as the ideal treatment for eclampsia, and considers that it is indicated only in the rare instances in which the cervix is rigid and undilated and no improvement has followed venesection. In only one case, which proved fatal, was the operation performed for placenta prævia, although 66 examples of this complication of pregnancy occurred in this series. Dr. Williams is of opinion that the frequency of rupture of the uterine cicatrix is probably exaggerated, as this occurrence took place only once in 48 women who had undergone repeated sections, as well as in 12 deliveries through the natural passages subsequent to sections. Although it is generally stated that the child delivered by Cæsarean section is born in an apnœic condition and is sometimes deeply

[1] Bulletin of the Johns Hopkins Hospital, June, 1921.

asphyxiated, over half the children in the present series cried immediately after delivery, and only 7 per cent. were deeply asphyxiated. Dr. Williams concludes by saying that though Cæsarean section is frequently the easiest manner of delivering the patient, in the presence of various abnormalities it is not always the safest, and that ideal results are obtained in only a few clinics.

JUBILEE OF PROFESSOR LÉON FREDERICQ.

AT the end of the present academic year Léon Fredericq, Professor of Physiology in the University of Liége, will become Emeritus Professor on resigning a chair which he has held with high distinction for 42 years, for he was the immediate successor of Th. Schwann. The occasion will also mark the fiftieth year of his academic activities as well as the fiftieth anniversary of his promotion to the degree of "Docteur en Sciences Naturelles." Prof. Fredericq's scientific activities have ranged over a wide field of physiological investigation and discovery, and his name and the results of his life-long work find a place in every text-book of physiology and every physiological laboratory. His wide knowledge of zoology and on occasion its practical pursuit enabled him to take a comprehensive view of physiology. His work ranges over such diverse fields as coagulation of blood and fibrinogen, hæmoglobin and hæmocyanin; physiology of the squid, echinus, and crustacea, autotomy, cardiography, venous pulses, the physiology of the heart and respiration and the cardiac nerves, tension of blood gases, apnœa, variations of the volume of the brain, &c.; while he has added considerably to physiological technique, as in the description of the œsophageal sound, crossed circulation, atriotome, oxygenograph. Moreover, he has trained and helped a large number of pupils to carry out original work in his laboratory, the later results being published from 1888 in the *Archives Internationales de Physiologie*, edited by Fredericq and Heger (of Brussels). His "Éléments des Physiologie Humaine," edited jointly with M. Nuel, is in its seventh edition. It is proposed to publish a "Volume Jubilaire," to consist of contributions by his Belgian colleagues, and those of allied and neutral countries. The volume will be dedicated to Prof. Fredericq and will be published in the *Archives Internationales de Physiologie*.

STEREOSCOPIC VIEWS OF THE MIDDLE EAR.

IN the course of an investigation extending over many years Mr. Arthur H. Cheatle assembled the most complete collection of specimens ever made to illustrate the surgical anatomy of the middle ear and of its accessory air sinuses. Every specimen was obtained from a subject of known age and sex, and hence the collection is of the utmost value for the study of the age changes undergone by the middle ear, and of the prevalence in adults of variational types. Ten years ago Mr. Cheatle presented his entire collection to the Royal College of Surgeons of England, where it has been placed in the upper gallery of Room 11 of the Museum, side by side with the famous Toynbee collection. A descriptive catalogue, prepared by Mr. Cheatle, has been published by the College for the use of visitors, who come to study from all parts of the world. There are, however, many aural surgeons and others who cannot afford the time or means to visit London and share in the fruits of Mr. Cheatle's toil, and hence have suggested that stereoscopic views of the more typical and important specimens should be made and placed on the market. This has now been done under Mr. Cheatle's supervision.[1] About 200 specimens have been photographed and a series of lantern slides prepared to meet the needs of those who have to teach the surgical anatomy of the temporal bone. The photographs and slides are of excellent workmanship, and should prove of the utmost utility for teachers of anatomy and aural surgery.

[1] Catalogue and Guide to Collection of Lantern Slides of the Anatomy of the Temporal Bone. Set of 200 slides in five boxes, with Album of Photographs and Catalogue. H. K. Lewis & Co., Ltd. 1921. Price £30.

A TRIBUTE TO DR. ADDISON.

Lord Carson presided at the recent complimentary dinner to Dr. Christopher Addison, the late Minister of Health. The gathering was an eminently appropriate one, for political circumstances appear to have dictated Dr. Addison's withdrawal from office at the very time when the value of his pioneer work was becoming evident to all except impassioned critics. It had no political complexion, and was a spontaneous expression of friendship towards Dr. Addison, arising out of his strenuous work in high official capacities throughout the war. Lord Carson said, "Dr. Addison is one of the few who has lasted from the beginning of the war until to-day," adding that he, Lord Carson, had tried to do so, but had failed. Tributes of appreciation to Dr. Addison were paid by Sir Henry Birchenough, Sir Thomas Neil, chairman of the Consultative Council on Health Insurance Societies, Professor R. A. Bolam, chairman of the Council of the British Medical Association, and Sir Ernest Moir, lately Controller of the Inventions Department of the Ministry of Munitions. The dinner was attended by members of both Houses of Parliament and by the staffs of the Ministry of Munitions and of other Departments over which Dr. Addison had presided, and the guest of the evening had a right to be deeply gratified with such multifarious recognition of his patriotism, industry, and zeal.

THE FÆCES IN ALIMENTARY DISORDERS.

THE examination of the fæces has not yet become established as an essential part of the clinical investigation of a patient suffering from disease or disturbance of function in the digestive system in the routine way that the urine is observed in morbid conditions of the kidney and in diseases of metabolism. This is the more surprising when it is recognised what valuable indications, both in regard to diagnosis and treatment, examination of the fæces can afford, and, further, how comparatively simple the essential processes in this investigation are. The subject is dealt with in a practical, interesting, and suggestive paper, published in THE LANCET of July 2nd, by Dr. Robert Coope. He commences his paper with the statement that it is important to bear in mind that normally on a digestible diet the only food residues found in the fæces are remnants of muscle fibre and the tough débris of vegetables. This fact is often forgotten or not appreciated. It should, moreover, be recognised that test diets may be given, especially where it is desired to examine for occult blood or soluble albumin. Dr. Coope suggests that a simple technique should involve the macroscopical, microscopical, and chemical examination of the fæces, each of which may give valuable information. Such investigation may afford indications of crucial importance, as Dr. Coope's records show. He points out that the abnormal findings can be divided into two catagories: the absence of normal constituents, and the presence of abnormal ones. In the first stercobilin is the chief constituent studied. If it is absent, it may be inferred that no bile is reaching the intestine. In the second category he mentions the presence of various food residues, especially undigested muscle fibre, connective tissue, starch grains, and fat, and the addition of blood, soluble albumin, and mucus. Dr. Coope maintains that if connective tissue reaches the fæces in any marked amount, the conclusion that there is a failure of gastric digestion may be drawn with complete confidence—a practical point. The whole paper is a valuable contribution to the study of diseases of the digestive system. Until recently there was a tendency to treat these diseases in this country in a less scientific fashion than is the custom on the Continent and in America, but the

routine application of test-meals, X ray examinations, and fæcal investigations seems likely to become established. The alimentary system admits of more direct investigation than some other of the important systems of the organism, and accurate diagnosis, with effective treatment, should be possible in a large majority of cases.

THE POSITION OF INTESTINAL COILS.

DR. A. C. GUILLAUME in *La Presse Médicale* of June 15th has tried to answer the old query as to whether there is or is not any definite arrangement of the coils of small intestine within the abdomen. Nobody would deny that great importance might be attached to a definite answer in the affirmative, but no anatomist will be tempted to give this. Dr. Guillaume's views are in strong support of those usually taught in this country, that the first portion of the mesenteric gut generally lies to the left of the middle line, the succeeding coils being in front and in the pelvis. He points out that the arbitrary junction of jejunum with ileum is fairly constantly placed at the left pelvic brim. English anatomists will agree with these findings and will correlate them not only with the line of mesenteric attachment, but with the greater depth of the mesentery in the region of the ileum; but they will hardly feel inclined to agree with the suggestion that it might be possible to go, with any practical advantage, into more particular details of topography. It may be admitted at once that the material on which the anatomist works is not typical of young and healthy bodies, but in spite of that, and perhaps even on account of that, it represents a class likely to come under clinical observation and to call for clinical diagnosis. Yet even the anatomist who is accustomed to open these bodies hesitates to predict what he will find in the abdomens. Treves, Henke, Sernoff, Weinberg, and other investigators have reached divergent conclusions regarding the arrangement of the coils of the small intestine. Mall's primary loops are of developmental interest, and are recognisable to a great extent in the adult, but hardly bear on the present question. The situation of coils en masse, and also their disposition and direction, would seem to be related in some way to the arrangement of the large gut, but no definite laws on this matter have yet been laid down; the point is not dealt with by Dr. Guillaume. His work is of some interest to the clinician, but more observations will be necessary to establish the proportionate occurrence of the varieties he gives and to indicate the conditions concomitant with these varieties, so that the chance of an error in topographical intestinal diagnosis may be reduced to an absolute minimum—and this, we fear, will remain an ideal for many years to come.

THE SIROCCO FAN.

Sir Samuel C. Davidson who received the K.B.E. on the occasion of the visit of the King and Queen to Belfast is not indeed a medical man, but he has done a great deal for hygiene, particularly at sea. He is the inventor and manufacturer of the "Sirocco" fan which, first invented to dry tea, is now used so extensively, particularly in the ventilation of ships. There are at least 68 in the *Aquitania* and 74 in the *Olympic*, more likely 100 in each, but we may say, without fear of serious inaccuracy, that every large steamer uses them for forcing draught in the stokeholds; they are employed in the Royal Navy, while one of the tube railways and one well-known theatre are ventilated with their help. The Sirocco fan, which is made in Belfast, has not been materially improved by any foreigner though often pirated. It is of quite original design. The ordinary flat propeller fan has blades which, at different points along their length, move at very different velocities: they therefore drive the air along the air trunk at different velocities at different distances from the centre, and so much energy is lost by friction and eddies. Sir Samuel Davidson had an inspiration, and devised a fan which uses a ring, an annulus, of blades only 1/20th of the distal end of the radii, all parts of which ring are sensibly moving at the same velocity. The moving part of the fan is shaped like a tall hat, but instead of the impermeable side, there is a sort of venetian blind arrangement of slats running the length of the hat from the brim to the crown, some 48 of them, and each with a slight uniform twist. The runner rotates in a trunk. Air enters in the centre and the appropriately curved slats, as they rotate, shave off the air near them, slip it through between them at great speed and take more continuously. They pass it through and send it on at a pressure three or four times what any other fan can get, and that is achieved with great economy of energy. Hence it is they are used in men-of-war where the deck openings must be kept as small as possible and yet stokehold pressures must be as high as possible. The Royal Victoria Hospital at Belfast is ventilated with the Sirocco fan, this prophet having some honour in his own country. With reference to Sir Samuel Davidson's honour, a regular correspondent writes to us: "I have two personal recollections of the Davidson fan. When the Royal Sanitary Institute met at Belfast Davidson told me that he had persuaded a man there who managed a tea-shop to have his shop properly ventilated, and that the man afterwards declared that he was very well satisfied, for since he had installed good ventilation his customers ate more cakes. But what is more important, I remember a ward of 40 beds in a ship with bad ventilation, stuffy and hot, and the men could not sleep at night. Two Sirocco fans, three feet each in diameter, were turned loose on it, ventilated and cooled it, and thereafter the men slept. It is a fine hygienic instrument, and has done great good at sea, and it was fitting that the Sailor King should have honoured one who has brought great benefit to seamen."

A STOMACH TUBE FOR INDUCTION OF LABOUR.

NONE of the various methods of inducing premature labour are free from disadvantages of one or another kind. The use of bougies is safe and certain, but may be very tedious, and the introduction of a hydrostatic bag, such as that of Champetier de Ribes, has the great objection that it displaces the presenting part and often produces a malpresentation, a serious complication when the child is premature. In some clinics rupture of the membranes is practised, and this has the merit of being simple and certain, but renders the labour a dry one, with its attendant risks to the child.

In the June number of the *Dublin Journal of Medical Science* Dr. Gibbon Fitzgibbon describes a method of inducing labour which is perhaps more simple and at the same time more free from danger than any hitherto suggested. On one occasion he found the bougies selected for an induction were spoiled in preparation, and in the emergency he made use of a 30-inch No. 22 stomach tube. He has since used this method in all private cases, and more recently in several hospital cases, and has never found it to fail. The tube must be of soft rubber (No. 20 to 24). The lips of the cervix having been exposed with a speculum and forceps, the end of the tube is passed into the cervix. If after about four inches are introduced the tube sticks, a slight twist on its long axis or a change in the direction of pressure enables it to be pushed right inside the uterus. It coils itself in front of the presenting part in rings about 3 inches in diameter, and when the os is half dilated can easily be removed. Dr. Fitzgibbon states that the tube has the following advantages over bougies: (1) greater ease and certainty of sterilisation; (2) practically complete absence of risk of rupturing the membranes; (3) in the uterus it is confined to the lower uterine segment and so avoids the possibility of disturbing the placenta and also of carrying infection up to the region of the placenta; (4) it is as stimulating as the bougies—in all probability it is more so, as it is all in the lower

segment, and exerts a slight elastic pressure from its coiled position. Against these advantages two possible objections occur to us: one is that the tube may not be easy to insert into an undilated cervix, whereas bougies slip in readily; the other is that the coiled tube might displace the presenting part. However, the method would appear well worth trial.

At the same time we think that the method of introducing solid bougies, coupled with the digital separation of the membranes round the internal os as far as the finger can reach, if necessary under an anæsthetic, is the safest procedure to adopt.

THE PATHOLOGICAL AND BACTERIOLOGICAL LABORATORY ASSISTANTS' ASSOCIATION.

THE organisation of assistants in pathological and bacteriological laboratories, known as the P.B.L.A.A., was founded some years before the war, but the evolution of its activities was practically at a standstill for five years, and it is only this year that it has been able to bring to a head the educational programme which is the chief object of the Association. During the past week the first examinations for certificates of proficiency in laboratory work have been held, and some 40 candidates have presented themselves in Edinburgh, Liverpool, Manchester, Bristol, and London. Before admission to the examination assistants must have been occupied in laboratory work under specified conditions for a period which varies with the age at which the candidate joined the Association; the examination, which is mostly of a practical character, is conducted by an examining council and examiners who are appointed by the council of the association in coöperation with the committee of the Pathological Society of Great Britain and Ireland. It may be taken, therefore, that the examination will be directed to testing the candidates' proficiency in the lines of work which those in charge of pathological laboratories desire their assistants to pursue. Every laboratory worker knows the value of good assistants in promoting medical education and the advancement of knowledge, and this scheme for raising their standard, for encouraging the boys when they first come to the job by giving them a definite status to aim at, and for arming those who are competent with evidence to that effect, will, we believe, be generally recognised as a substantial piece of progress. The secretary of the Association is Mr. A. Norman, New Haw, Weybridge, Surrey.

THE PARATYMPANIC SENSE-ORGANS.

IN the *Arch. ital. di otol., rinol., e laringol.*, Vol. XXXI., 1920, Angelo Ruffini refers to the anatomical investigations of G. Vitali, some of which were published in the *Anatomischer Anzeiger* before the war. One of these discoveries Ruffini regards as of great importance, the existence of a small sense-organ or vesicle situated on the median wall of the tympanic cavity of birds and bats, innervated from the facial nerve. In the pigeon the vesicle has a diameter of 1 mm.; in other birds, for example, sparrows, its diameter is 0·5 mm. Vitali found that after its removal in pigeons the same results obtained as after complete removal of the semicircular canals. He set aside the contention that these results might have been due to injury of the canals when the tympanic membrane was perforated, for histological investigation showed, after removal of the paratympanic organ, degeneration of the vestibulo-cerebellar paths, of the cells of Deiter's nucleus and of the facial nucleus. From the position of this organ under the mucous membrane of the tympanic cavity Vitali concluded that it is an organ which reacts to variations of pressure within the middle ear, the pressure varying with the density of the medium in which the bird finds itself. The bird is thus enabled to determine the density of the medium in which it is flying, and to regulate the innervation of its muscular movements accordingly.

THE COLON AND COLITIS.[1]

[ABRIDGED]

BY LORD DAWSON OF PENN, G.C.V.O., C.B., F.R.C.P. LOND.,

PHYSICIAN-IN-ORDINARY TO H.M. THE KING; PHYSICIAN, LONDON HOSPITAL.

Lord Dawson began the Annual Oration before the Medical Society of London by pointing out that the subject on which he was about to discourse was one that eminently lent itself to debate, so that he regretted that no debate would follow the oration. In an introductory passage he showed how the importance of the colon is manifested by the recurring experiences of daily life, being an organ with highly developed functional activity closely linked up not only with the alimentary tract but with the higher nervous centres. Before drawing the following clinical picture of colitis he pointed out that he was talking only of so-called mucous colitis and not of any condition associated with organic disease of the colon.

The Clinical Picture of Colitis.

The colonic manifestations are abdominal discomfort or pain, disturbance of the function of the colon as shown by irregularity in its evacuation and alteration of its contents, including the expulsion of mucus, and sometimes of blood or sand. By variation in their severity, by the ease with which they are provoked and the frequency of their occurrence, the foregoing features produce varying clinical pictures. Thus pain may be acute or paroxysmal, or dull and aching, or, again, there may be a constant sense of abdominal discomfort and misery. Tenderness may be local, general, or absent. Mucus may be passed in casts, as lumps or in stringy form. In some cases the disease comes on in attacks and at long intervals, and the patient is quite well between whiles; in other instances the intervals of immunity are short and even incomplete, and, it may be, to such an extent that the patient is chronically ill and liable to exacerbations of symptoms on the slightest provocation.

The descending colon will be felt to be tightly contracted, and sometimes in addition the cæcum toneless and distended. Examination by the sigmoidoscope will not usually at this stage disclose signs of inflammation, which shows that inflammation is not a necessary part of the condition; and in some cases where the mucous membrane is red and swollen such appearances may be evanescent and give place to normal appearances after a short interval. Infection does, in some instances, contribute to the picture, just as it is liable to follow disturbances of function in the urinary and biliary tracts. Such infection may be related to tonsils, gums, stomach, or appendix.

The appendix is seldom the focus of infection; more often it shares an infective process on equal terms with the colon; hence the results of its removal for colitis are commonly disappointing. Radiography shows the distal colon to be tonically contracted and irregularly segmented. Side by side with this may be disclosed varying degrees of delay—it may be in the cæcum, colon, in the lower ileum, in the second part of the duodenum. Further there may be displacements of the hollow viscera, such as a prolapsed cæcum and the familiar festooned transverse colon, or again, a movable ascending colon, hairpin bends, and kinks.

With our greater familiarity with X ray appearances in all varieties of cases we know how commonly anatomical irregularities can exist with bowels that function normally. When we recall how coils of intestine kinked and tethered by old adhesions can exist, and acute bends of the bowel be produced experimentally without causing stasis, we are led to conclude that, provided the musculature of the bowel is efficient, these anatomical irregularities need not count for much, especially in those portions of the bowel where the contents are fluid. In specimens examined by Sir Arthur Keith the lumen of the bowel

[1] The Annual Oration delivered to the Medical Society of London on May 23rd, 1921.

was not encroached upon, and the coils above kinks were not hypertrophied. On the other hand, delay can exist without the presence of any anatomical abnormality. The holding up of the contents of the lower ileum by the ileocolic sphincter is a part of normal digestion, and hypertonicity of that sphincter will produce ileal stasis. In the same way tonic contractions of the descending colon will produce delay in the proximal colon. In short, the immediate cause of stasis lies in the intestinal wall. It is the musculature and its nerve innervation which count, and it is only seldom that anatomical irregularities play an important part.

The orator then pointed out that it was of small benefit to perform ingenious operations to replace or fix viscera unless the anatomical variations produced symptoms calling for relief. He then demonstrated that the colon was not the only part affected, but that cardiospasm, gastric distension, flatulence, symptoms of duodenal ulcer, and affection of the upper alimentary tract may any of them be present, the colitis being one phase of a disturbed digestion in which stomach, duodenum, intestine, and pancreas may all play a part. The well-known features of alimentary toxæmia went far, in the orator's opinion, to give character to any given case of colitis. After commenting on the variability of the extent of this toxæmia and of its association with fibrositis and arthritis he proceeded to discuss the different types of abdominal response.

The Over-responsive Abdomen.

Consider now the patients themselves—observe the difference as to the sex-incidence. Some find females to preponderate largely (Hale-White 85 per cent., Hurst 83 per cent.); others do not (Douglas Wilson 57 per cent.). I rather think the number of males has been increasing in recent years, and, judging by the notes of my cases, I should conclude the percentage of women to be about 70 to 75. The feature which is noticeable with a large number of patients is the over-responsiveness of the abdomen to nerve impressions. They have "barometric abdomens." Fatigue, fear, anxiety, mental stress and strain manifest themselves in their hollow viscera. So do reflex disturbances. Women suffering from the disease often have pelvic disorders which aggravate the intestinal symptoms, and especially during menstruation. Or let these patients have cold extremities (and they often have poor peripheral circulation), especially when they are fatigued, or, again, let them eat when they are cold, and an attack of colitis may easily follow. So much is this the tendency that in dealing with these patients it is part of my routine directions to them never to eat with cold hands and feet, and when they are tired to keep their extremities warm. The effect will sometimes follow the cause with amazing quickness—such quickness as would not give time for any inflammation to develop. I suggest it is rather that reflex nerve disturbance or central nerve disturbance, acting on over-responsive hollow viscera, puts function out of action—certainly motor function, and probably secretory and excretory function also. The rhythm of the intestine becomes disturbed. It is the difference between the regular and the irregular heart, between perhaps normal muscular contraction and auricular fibrillation. Since each zone of the alimentary tract influences the efficiency of the zone below and perhaps above it, if one zone be disturbed the other zones suffer, and thus the orderly sequence of digestion is deranged. Given failure in the function of movement, in the function of secretion (internal and external) and the consequent irregularities of putrefaction and deranged absorption, and "colitis" receives a large measure of explanation.

This over-responsiveness of the abdomen varies in degree. With precautions learned of experience it may, ordinarily, cause little trouble, but should untoward circumstances like over-fatigue, anxiety, bad feeding, occur, the colitis symptom complex may result. But there are some people whose nervous system is cut so fine that the ordinary rough-and-tumble of life is too much for them, and thus are explained some of those examples of intestinal invalids who are never well, and in whom chronic ailing is only varied by recurrent phases of acute symptoms. Such patients are not "neurotic." To call them so is a misuse of the term; they may, on the contrary, be heroic, working and even smiling in spite of the load they have to carry. Whether they become neurotic will depend largely on the considerations set forth in the following paragraph.

The Conscious Abdomen.

If a gastro-intestinal tract is constantly causing aches, pains and discomforts, it gets raised in consciousness, with the result that slighter and slighter disturbances and even its very doings produce impressions and discomforts instead of remaining unperceived. We thus get built on the basis of physical disease a superstructure of symptoms and distresses which flourish on themselves and tend to grow apace. There is thus a liability of a *conscious* abdomen being added to a *responsive* abdomen, or in other words, of a *state of mind* being added to a *state of body*.

The degree to which this happens in large measure explains the many varieties and intensities of symptoms occurring in patients who suffer from colitis; and here come in the temperament and character and training of the patient. The buoyant, cheerful temperament with a sense of humour will come off better than the inelastic and sombre temperament. A subject who is introspective and self-centred may be enslaved by the disease, whereas if the subject has the power of sympathetic interest in people and things, can control the mind, and has courage to work, he can, in spite of a colon which is a constant trial, live a tolerably useful life by keeping clear of the worst evils which accrue from the conscious abdomen.

The so-called "neurotic" group consists of those who have developed from their colitis the "conscious abdomen" and have introspective minds. To be neurotic is no essential part of colitis, though it is small wonder that many of the patients become so. It remains, however, a secondary incident, not an essential feature of the disease. How damaging the "conscious abdomen" can become is illustrated by that well-known type of patient who becomes so analytical of the feelings, doings, and contents of his colon as gradually to abandon aught else and live for his lower bowel.

The orator then in a brief digression suggested that the medical profession ought to take up in a large-minded spirit the question of psychical treatment, for the patient with colitis who is in danger of being crushed by his illness is not helped by being dubbed a neurotic. He then referred to the suggestive researches of Sir Arthur Keith into the nervous mechanism of the alimentary tract, and recalled the apt comparison made by the latter between the nervous mechanism of the alimentary tract and that of the heart. He continued:—

We are well acquainted with tachycardia, irregularity of rhythm, fibrillation—heart-block and the responsiveness of heart action to extrinsic impulses. Why should not corresponding irregularities occur in the alimentary tract? And if to disturbed motor function we add the supposition of disturbed secretion and the effect of both of these on the intestinal contents, I suggest the clinical phenomena of colitis receive a considerable measure of explanation.

Stasis, though not a necessary, is quite a common feature of colitis. The two conditions often present one and the same clinical picture, and in their pathological findings there is a close resemblance. They are variants of the same morbid state and the same case may be styled colitis by one observer and intestinal stasis by another.

Alimentary Toxæmia.

Although the term alimentary toxæmia presents to our minds a definite clinical picture the mode of production of the condition is obscure. We may reasonably suppose that a high content of waste products and a damaged intestinal wall are the conditions which favour the passage of toxic products. And these are the conditions which exist in the large intestine in colitis, and sometimes also in the lower

ileum. Stasis is not a necessary factor, for in ulcerative conditions of the colon associated with diarrhœa alimentary toxæmia may be a marked feature. Again, strong purgatives, by irritating the intestinal wall, may aggravate rather than allay an existing toxæmia. In colitis there is a retention of contents in the recesses of the colon even when the bowels are open; the latter, in short, do not sweep clean. The degree of toxæmia would depend on the nature of the contents which the colon receives from the ileum, the length of stay of such contents in the colon, and the measure of weakness of the colon defences.[2]

But in cases of colitis and stasis the colon and ileum are not solely responsible for alimentary toxæmia; for the latter will sometimes persist after ileo-sigmoidostomy and colectomy.

The orator here described in detail two cases showing colitis, stasis, and toxæmia in illustration of his statements. He went on to point out that even when the damaged colon has been put out of harm's way and prompt evacuation secured toxæmia may persist. This means that there is a second line of defence, the liver, and that this line may also fail. The colon and liver would thus seem to have a joint responsibility. In some cases the colon defences may have failed so badly that the flood of toxic products is more than even a normal liver can cope with. Given such circumstances, colectomy should succeed. In other instances the liver has a substantial share of responsibility, and then the results of colectomy will be clinically disappointing, even if technically successful.

He referred briefly to the similarity of the symptoms of a "chill on the liver" to those shown after a second injection of a horse serum, and suggest the possibility of an anaphylactic origin of certain attacks of colitis; Dr. A. F. Hurst had pointed out certain suggestive parallels between asthma and colitis. The orator proceeded in conclusion, to discuss the question of treatment.

Treatment.

Owing to the complexity of its origin and the variety of its manifestations, mucous colitis is difficult to treat. The coarse food rich in cellulose advocated by Van Noorden is not a success. It irritates the intestine, and is prone to produce gas. The food should consist of light solids—for example, white fish, first cooked meats, dishes made with eggs, light puddings, &c. Soups should be taken sparingly or avoided. Only a little fluid should be taken with the meals, but sufficient between meals. Fruit and vegetables are a problem; they are often difficult to digest, yet from the point of view of nutrition desirable; mashed potato, cauliflower, and cooked celery and lettuce agree, and of fruits apple is the safest.

In intractable cases the limitation of vegetables and fruit has often to be strict and by some authorities a paste (macaroni) diet is prescribed for a period. The disadvantage of a too-restricted diet is twofold—it discourages the patient, and is apt to result in an insufficiency of essential foodstuffs and vitamins. The latter may be given separately where foods containing them cannot be tolerated in adequate quantity. Sometimes fruit and even raw vegetable like lettuce can be tolerated if taken alone, whereas they remain undigested if mixed with other food. And, generally, colitis patients do better by taking only two main articles of food (courses) at a meal.

It is important for the extremities to be warm, and especially before eating. If the body or mind has been engaged in effort a few moments of repose and relaxation should precede the taking of food. It will often be found that these patients cannot take vigorous exercise of both body and mind on the same day. A business man is often better with only gentle exercise during the week, reserving his physical exertion for the week-end. Where the patient's abdomen is over-responsive the treatment advised should have regard to that fact. Fatigue, stress, and anxiety must be guarded against where possible. Periodic rests, such as a weekly or fortnightly day in bed, helps to secure this end.

A great deal can be done by educating the mind not only to concentrate, but to detach and relax quickly. This is an important aspect of treatment. Physical culture holds an established position. Surely psychical culture is of like importance. The power to rest quickly and relax deliberately is essential to those who feel acutely and work strenuously. Drugs that aid digestion, like taka-diastase and pancreatin, do good. Sleep is apt to be disturbed by distensions of the hollow viscera. Bismuth and sodium bicarbonate with carminative, and if necessary a few minims of nepenthe, given at bedtime, will help this condition. Aperients should be gentle, and for clearing the bowel castor oil is the best. Very often little aperient is needed if paraffin is taken regularly, though there are patients in whom paraffin is ejected alone and even incontinently. Special care in the use of aperients is needed when bacilluria exists. An essential indication is to secure the emptying and cleanness of the colon. This is secured by intestinal lavage. Bismuth in bulk (℥ ij.) administered in bread and milk or jelly taken every week or ten days is often of benefit. It seems to act by scouring the colon. Where there is much fermentation an ounce of wood charcoal may be mixed with the bismuth. Intestinal antiseptics are disappointing.

Where the above measures fail to secure evacuation and cleansing of the intestine appendicostomy is a sound and safe procedure, and is often productive of considerable benefit.

Colectomy.

Sufficient experience has now been gained to pass the operation of colectomy under review. The results as a whole have not been encouraging. Apart from its magnitude and therefore risk, the operation seldom restores to a patient anything approaching a normal life. Patients will express doubts as to whether they have gained enough to have made the operation worth while.

As the cases quoted above show, technical and clinical success do not always go together. Further, there are not a few instances where the operation completely fails in its objects and leaves the patient as wrecked if not more wrecked in health than before. Now and again the results are excellent and succeed where previous measures have failed. I have under observation a case in which a transformation was effected by colectomy, and now, after ten years, the patient continues in good health.

The indications for colectomy would seem to be: 1. Where the motility of the colon is so spent that all other measures fail to prevent stasis within it. 2. Where the colon is so damaged in its defences that, in spite of every effort to keep it cleansed, toxic products get through in such abundance as to ruin the health of the patient. But here, too, there is risk that the second line of defence in the liver may be damaged also.

Hemicolectomy.

Hemicolectomy is on a different footing. The operative risk is small, and if it fails in its object there is little risk of the patient's condition being worsened. If the failure of function is in the proximal colon the prospect of success should be good, especially if the ileo-colic valve is preserved in the implanted portion, as has recently been done. Unfortunately, however, there is sometimes too much mischief in the distal colon for the operation to be adequate. When such is the case and a complete colectomy appears to be inevitable, I suggest that it is worth while considering in each case whether colotomy would not be efficient and preferable. The thought of colotomy is, no doubt, in discord with a fine surgical sense, and its performance carries a feeling of disappointment to the surgeon that circumstances do not permit him to do something better. But in relation to this particular problem it has advantages. It is a simple operation, patients achieve a con-

[2] Graham Brown has described an amine (p-hydroxy-phenylethylamine) which is formed in the intestine under conditions of stasis by the putrefactive destruction of proteins through the action of anaerobic bacteria. This toxin is converted in the liver into p-hydroxy-phenylacetic acid, and as such can be found in the urine in cases of alimentary toxæmia. It acts on the sympathetic producing hypertonus.

siderable accommodation to its inconveniences, and, if it fails, further surgical procedures are not precluded.

On the other hand, complete colectomy is the last and irretrievable word: it offers but a modest prospect of success, and its failures, not a few in number, are sometimes apt to be such dire failures as to mean for the patients misery and suffering little capable of alleviation.

Public Health Services.

ANNUAL REPORTS OF MEDICAL OFFICERS OF HEALTH.

Staffordshire County Council.

IN his annual report for 1919 Dr. George Reid has omitted the summary of the district reports which he was in the habit of making before the war because of the high cost of printing and because the County Council could hardly take action, involving expenditure, at the present time. He states, however, that the reports give considerable prominence to the question of housing. The county health visiting scheme makes good progress. Previous to 1919 two centres for infant welfare and school medical work had been established under the joint scheme of the County Council and County Education Committee. Since that date ten new centres have been established. During the year an Infant Welfare Travelling Exhibition has been purchased and has toured through the county with good results. Twenty-one women have been sent for training as midwives, five subsidies have been granted to practising midwives, and six new local nursing associations have been formed; an income scale has been fixed governing the recovery of fees paid to doctors called in by midwives. It has been necessary to be content with a lower standard for sewage effluents, owing to the deterioration of some of the sewage disposal works during the war. Of the two venereal disease centres already established, the centre at the Wolverhampton General Hospital has been a great success, but the North Staffordshire Infirmary Centre may have to be discontinued owing to the small attendance. Two subsidiary centres have been begun at Tamworth and Lichfield, and there have been negotiations for others at Leek and Walsall, and in connexion with the hospitals at Stafford and Stourbridge. The medical practitioners have coöperated in the scheme and about 20 of them have qualified themselves for the administration of salvarsan or its substitutes. The number of Staffordshire cases of venereal disease treated during the year is given as 666, and the estimated population of the administrative county (for death-rate) as 674,671. The number of midwives practising in the county was 284, of whom 57 were over the age of 65. The mean number of cases attended per midwife in the three divisions of the county was as follows: North, 27·4; Central, 23·3; South, 65·2. Midwives attended 70 per cent. of the births in 1919 and 66 per cent. in 1918. Medical help was sent for by midwives in 1809 cases, as compared with 1165 in the previous year, and Dr. Reid attributes the extraordinary increase to the fact that the County Council now pay the fees of the doctors called in. The figures show that the midwives sent for medical help in more than 17 per cent. of their cases.

The number of cases of ophthalmia neonatorum reported was 85, 60 slight and 25 severe. Of the 25 severe cases 18 recovered without injury to sight, 5 died from other causes, and 2 suffered slight damage to sight. A clear history of venereal disease was established in 38 cases. The loss of sight among the survivors of the severe cases reported during the last three years (who numbered 72) amounted to one eye in one case and both eyes in another. Of the 284 practising midwives, 275 are able to read a thermometer, 261 are able to read and write, and 189 are able to pass a catheter.

The birth-rate was 21·5, to be compared with 24 for the previous quinquennium; the death-rate was 14·0 compared with 15·0. The infant mortality rate in the urban districts was 96 and in the rural districts 72, compared with 103 and 83 respectively during the previous year. There was a great reduction, as elsewhere in the country, in the number of notifications of tuberculosis. Dr. Reid explains this by the swelling of the numbers in the early years of notification by the inclusion of old-standing cases. There was, however, a great reduction throughout the country, both in deaths and notifications from tuberculosis of the lungs in 1919, compared with the war years, and it is possible that this reduction was largely due to the cessation of war industrial work, taken up or continued from patriotic reasons by persons of both sexes who were unfit to stand the strain.

County of Dumfries.

The annual report for 1919 shows that the population of the county for 1919 was 46,458. The birth-rate was 21·7. Of the 1009 births, 120 were illegitimate. The death-rate for the county was 13·06 and the infant mortality rate 89·2. Dr. J. M. Ross records an outbreak of mild scarlet fever in the parish of Sanquhar and thinks its spread may have been helped by the picture house, which was extremely popular and crowded at every performance during the outbreak. There was no special prevalence of diphtheria compared with previous years, 75 cases being notified with three deaths. As in other districts, a decrease is recorded in the notifications of tuberculosis. Dr. J. Ritchie, the tuberculosis officer, says: "The sharp rise in the number of notifications of tuberculosis in 1916 and its subsequent decline is of interest. It may probably be connected with the influx of war-workers from other parts of the country, which took place about that time." The county sent 11 patients to the Westmorland Sanatorium, 4 to the Bridge of Weir Sanatorium, and 12 and 19 respectively to Lochmaben Hospital and Dumfries and Galloway Royal Infirmary. It would seem from the report that a sparsely populated county like Dumfries is an ideal district for the extensive use of shelters, and the following remarks by Dr. Ritchie on this subject are of interest (p. 27):—

"I am inclined to believe that of all measures at present available throughout the county for anti-tuberculosis work the provision of shelters is, perhaps, the most important. Provided that the patients are not too far advanced when commencing shelter treatment, and that they are sufficiently intelligent and conscientious to carry it out properly, excellent results may be obtained. Many patients, conscious of the benefit they have experienced, become enthusiastic devotees of shelter life, and one is not infrequently faced by the dilemma of having either to take away a shelter from a patient who is anxious to continue 'shelter life,' or to leave unprovided one who is anxious to begin it. There are at present four patients in the county who were provided with shelters during 1914 and have used them constantly since. All had well-marked pulmonary tuberculosis and were excreting tubercle bacilli when they were introduced to 'shelter life'; and although one might hesitate to say definitely that they have been cured, in three cases the disease has been arrested and the patients are fit for full work, while in the fourth there has been great and progressive improvement and the patient has been doing light work for several years. That equally good results could have been obtained by treating those patients without shelters is very questionable; and to compel them against their strongly expressed wish to return to the relatively unhygienic conditions of cottage life—with the possibility of causing a recrudescence of the disease—in order that their shelters may be used by other patients, is a responsibility that one is rather chary of assuming."

The report includes a housing survey of the five districts into which the county is divided, and also schemes and estimates for the extension of the Rockhall waterworks. As elsewhere, the sewage disposal works have deteriorated owing to the war from lack of attention. Under the heading "Dairies," Dr. Ross says:—

"Efforts are being made to improve the quality by the institution of a system of 'graded' milk, under which a higher price may be charged if a certain percentage of marks for condition of premises, cows, milkers, &c., is obtained.

The idea is good so far, but behind it lurks the danger that the less wealthy consumers may have to be content with milk of a poorer quality."

The report concludes with particulars of sanitary conditions in the five small boroughs in the county: Annan, Sanquhar, Lockerbie, Moffat, and Langholm. The burgh of Annan has had an extraordinary experience in overcrowding. The population in 1914 was 3854 and in 1917–18 rose to 5517. Since the Armistice the population has gone down to 4205 in 1919.

Stafford.

The annual report for 1920 shows that the estimated population is 27,762, and the birth-rate was 22·4, as compared with 17·9 in the previous year. The death-rate was 10·66 and the infant mortality rate, 65·9, was the lowest ever recorded. The death-rate from pulmonary tuberculosis is rather high, 1·08 for 1918 and 1·26 for the decennium 1910–1919, and Dr. C. Banks points out that this disease is "somewhat prevalent" among the boot and shoe operatives. Dr. Banks condemns the use of wooden tubs as receptacles for house refuse. He also thinks that "more might be attempted in the way of preventing the access of impurities to the milk during the course of milking and distribution," and that "there is much unnecessary exposure of food-stuffs such as bread, pastry, sweets, and other articles, permitting pollution by dust and flies." There is an active infant welfare centre, and it is mentioned that "in Stafford very many girls are employed in the factories up to marriage, so that they have little opportunity of getting to know anything about the management of children." Six cases of ophthalmia neonatorum were notified during the year and all were cured without permanent blemish. Stafford has its housing question: under the council's scheme for erecting 440 houses on two estates, 32 houses were completed and occupied by Dec. 31st, 1920. There are at the present time 91 houses in the borough which are unfit for habitation, but they cannot be demolished until facilities exist for rehousing the occupants.

Leicester.

The annual health report for 1920 states that the estimated population for 1920 was 245,465. The general death-rate was 11·7 per 1000, the lowest ever recorded. The infant mortality rate was 89·4 per 1000 births, again the lowest on record. Only once before has the infant mortality been under 100—viz., in 1919, when it was 98. The mortality rate among illegitimate infants was 145. The tuberculosis death-rate is also lower than ever. The rise in the death-rate from pulmonary tuberculosis which occurred during the war has now disappeared, in spite of the overcrowding, and acute shortage of houses. The birth-rate showed a remarkable increase—viz., to 24·0 from 15·3 in the previous year, and the marriage-rate was also very high. To quote from the report:—

"The two principal industries of Leicester are hosiery and footwear, but there are many other important trades—e.g., engineering, tailoring, cardboard-box making, elastic-web manufacture, printing, &c. With the exception of the boot and shoe trade, which is recognised as being a bad trade for tuberculosis, none of these industries can be regarded as being inimical to health."

A large amount of female labour is employed.

"At the last Census, in 1911, 47 per cent. of women were returned as being engaged in occupations other than in the home."

One of the events of the year was the opening of the new municipal maternity home with accommodation for 26 patients. The number of confinements in the new home during the first quarter of 1921 was 99. Leicester is well provided with the amenities of a modern city, and the amount of ground used for allotments is said to be much above the average, a fact to which Dr. C. K. Millard attaches great importance. In commenting on the high marriage-rate, Dr. Millard suggests that the impossibility of getting houses may be encouraging to matrimony, seeing that young couples have to live with the parents, and are thereby relieved of the financial outlay of starting housekeeping. He considers that the increase in the birth-rate adds to the seriousness of the housing shortage, the increase of the population in 1920 being 3060.

The soft water from the Derwent was found to act on hot water pipes and lime has now been added to prevent this. The pail-closets have been converted into water-closets, but there are many houses which only have a share in a water-closet. Much difficulty arises over defective dustbins, and Dr. Millard suggests that the corporation should replace them when necessary. "As almost every ratepayer uses a dust-bin, nearly all would stand to benefit by the arrangement." Although there is a municipal abattoir, there are still 55 registered slaughter-houses which "should be got rid of as soon as possible."

Dr. Millard estimates that 90 per cent. of the native-born population of Leicester under the age of 36 are unvaccinated. There were three deaths from enteric fever during the year. Of 101 notified cases of ophthalmia neonatorum, in only one case did permanent blindness or serious injury to sight result. The notified cases of pulmonary tuberculosis as well as the deaths showed a marked decrease. There has been a slight decrease in the number of new cases presenting themselves for treatment at the special (V.D.) clinic at the Royal Infirmary. At St. Mary's Home 12 beds are reserved for unmarried girls suffering from V.D. who are without proper lodging or accommodation. These cases remain under treatment at the expense of the corporation so long as they are considered in an infectious condition. Such provision is undoubtedly of great value. Some difficulty is experienced in getting pregnant women suffering from syphilis to accept treatment. The babies of ten such women treated in 1919 were all born healthy, and the nine still surviving are believed to be still healthy.

Very successful lectures on sex hygiene have been given to the boys and girls leaving the secondary schools. The lecture to boys was given by Dr. Vincent Shaw, and that to girls by Prof. Winifred Cullis, D.Sc. Dr. Millard has much to say about the housing shortage and the "exasperatingly slow" provision of new houses. The scheme of the sanitary committee for bringing the older houses up to date was stopped by the war, and it has not been possible to resume it owing to the financial position of the owners. According to Dr. Millard great difficulty is experienced in getting even ordinary and necessary repairs carried out. Some of the defects in the older houses mentioned by Dr. Millard are: The want of a separate water-closet; a common tap in the yard for the supply of water; the absence of a sink with waste-pipe; the absence of a copper, or facilities for washing clothes; kitchen ranges with no boiler or an inefficient oven; no provision for food storage, &c. There is a very active maternity and child welfare campaign in Leicester, supported by voluntary workers. The antenatal clinic is now well patronised. Hospital treatment is provided for sick infants at the isolation hospital (15 cots). There are now two maternity homes to meet the need aggravated by the house shortage.

As regards tuberculosis, the report states that the medical men of the city, as well as the general public, now fully realise the value of the dispensary as a centre for diagnosis. Twelve shelters are available for loan to patients for use on their own ground, free of charge. More time has been available for the examination of contacts during the past 12 months, though not nearly so much as was desired.

HEALTH OF THE BELGIAN CONGO: A CONFERENCE.—Dr. A. J. Orenstein, chief of the Rand Mines Department of Sanitation and formerly chief assistant to the late Surgeon-General Gorgas during his sanitary work in the Panama Canal, has left Johannesburg, South Africa, on a visit to the Belgian Congo, in order to confer with the Belgian authorities on schemes to improve the health of the Congo. It is hoped that with the drainage of certain tracts the incidence of malaria will be greatly diminished, and that in other ways the general health conditions of the district may be improved.

Correspondence.

"Audi alteram partem."

THE ARM-TRAINING SCHOOL AT ROEHAMPTON.

To the Editor of THE LANCET.

SIR,—The account of the Arm-Training School at Roehampton which Dr. C. Jennings Marshall contributed to your issue of June 25th cannot but be gratifying to the surgeons who have been working at Queen Mary's Convalescent Auxiliary Hospitals for the last six years and to Captain Rowlatt Maxwell, late C.F. Chief Arm Instructor to the Ministry of Pensions.

But while congratulating Dr. Marshall on the accuracy with which he has reproduced the result of the experiences which Captain Maxwell communicated to him, I cannot but regret very deeply that he has omitted to acknowledge the source of his information. First at Charterhouse Military Hospital and since at Roehampton and all over the United Kingdom Captain Maxwell has done invaluable work in educating amputees to make a good use of their arms, and he should receive every credit for his efforts and achievements.

I am, Sir, yours faithfully,

E. MUIRHEAD LITTLE,
Visiting Surgeon to Roehampton Hospital under the Ministry of Pensions.

Seymour-street, Marble Arch, W., June 29th, 1921.

*** We regret that in the same issue of THE LANCET as Dr. Marshall's account of the Arm-Training School at Roehampton we did not remind our readers of the circumstances in which the hospital came into being. They were noted at the time, but might well have been repeated. The hospital was first started in 1915, with Mr. E. Muirhead Little, Mr. T. H. Openshaw, Mr. A. S. B. Bankart, Mr. R. C. Elmslie, and Mr. E. M. Corner as the honorary surgeons in charge of the actual work of the hospital. Early in 1916 the committee of the hospital decided to appoint one orthopædic surgeon in supreme charge, and Mr. Little was asked by his colleagues to accept the post. He held this post with results which must be extremely gratifying to himself and to his orthopædic colleagues until the control of the surgical work of the hospital was taken over by the Ministry of Pensions in April, 1920. Since this time Mr. Little, Mr. Openshaw, and Mr. R. H. Campbell have been visiting surgeons until the present moment, when Mr. Little remains in single responsibility. There are three resident surgeons, and if this seems a large staff, it must be remembered that there are not only 200 in-patients whose needs have to be met, but a very large number of out-patients, while as many as 600 artificial limbs are turned out every month, and a vast mass of repair work is discharged. Captain Rowlatt Maxwell, the officer who is depicted using the artificial arms in the illustrations to Dr. Marshall's paper, initiated arm-training in this country. His practical work, first at the Charterhouse Military Hospital and since at Roehampton and many other centres in the United Kingdom, has been of the first importance to orthopædics. We regret that we did not append to Dr. Marshall's article a résumé of the history of the hospital.—ED. L.

"PSYCHOTHERAPY."

To the Editor of THE LANCET.

SIR,—The practical meaning of the title at the head of the following remarks may fairly be taken as "treatment of mental disorder." "Therapy" implies disorder, and the qualifying word "psycho," on the analogy of the old-established term "psychology," does not imply any preconceived theory as to the genesis of what we call mind, or even suggest any particular definition of the term "mind." But in recent years and with rapidly increasing frequency, both in medical and daily-journalistic literature, we find the term "psychotherapy" applied to the treatment now known as "psycho-analysis," of which the basis is Freud's doctrine of the "Unconscious Mind." The article by Dr. S. Herbert in your issue of June 11th gives me the impression that the author greatly under-rates the importance that is attributed by English alienists and neurologists to the sex-factor in the genesis of mental and nervous disorders. He says, for instance, that "there still exists among English psychotherapists" (here duly using the word in its proper meaning) "a good deal of reluctance to recognise to the full the importance of the sex-factor as a cause of psychoneuroses"; and, further, that "those who *try to minimise* the sex-factor should not *forget* that man is polyerotic"! The only other quotation I need make from Dr. Herbert's letter is as follows. "It is the recognition of the sex-factor which enables *us* to deal with such neuroses in a *satisfactory* manner, and effect a *proper* cure by means of *psycho-analysis*" (italics mine).

I think that it may be fairly inferred from the passages quoted that Dr. Herbert, who, in writing thus to THE LANCET, is addressing psychotherapeutists who do not accept the larger part of Freud's teaching, is both identifying "psycho-analysis" with "proper treatment," and is ignoring the fact that at least the majority of English medico-psychologists, in studying any case of mental disorder, are not only well aware of the importance of the sex-element, but also make practical use of that knowledge both in diagnosis and treatment. Nor is this knowledge and practice by any means confined to specialists in medico-psychology; it is widespread among the general body of practitioners. Again, the undoubted fact of the "polyeroticism" of the human being is not denied by anyone who would not deny that humans are animals. Any student of even the earliest psychological works of the great philosopher and alienist, Henry Maudsley, so recently lost to us, must recognise that the importance of the sex-factor in the genesis of mental disturbances, at the least, was emphasised by accredited teachers long before this doctrine was exaggerated, transformed, and linked up by Prof. Freud and others with what most scientific thinkers deem to be a false psychology.

I have no intention to enter here into fuller criticism of the Freudian teaching or of the growing tendency, which is affecting the public at large, to identify not only "psychotherapy" but "psychology" itself with "psycho-analysis"; nor can I dilate on what I know to be the evil and dangerous effects of the practice of "psycho-analysis" in some hands and in certain cases. Such cases are, of course, not published. Nor could they be published in any detail, even for the patient's sake alone, who might readily be identified in even anonymous reports.

But this much may be said about polyeroticism, its relation to psychotherapy, the causal part it plays in mental disorder, and the increasing attribution (now made by many) of the psychoneuroses to repressed eroticism, whether "poly" or "mono." There is no doubt that in certain periods and certain circumstances the prevailing repression of the sex-impulses leads to the establishment of some form of neuropathy or psychopathy. But a great measure of this "repression" is the rule of custom in nearly all civilised countries. It is, indeed, one of the essential and first elements of human civilisation. Yet neuropaths and psychopaths are still far from dominating any civilisation by their numbers. What *may* happen, at least for a while, if the practice of psycho-analysis should spread still further among us, is a question of grave import.

One last reflection, aroused afresh by the deeply interesting and weighty Croonian lectures on the "Objective Study of the Neuroses," delivered in June last by Dr. F. L. Golla at the Royal College of Physicians of London. The whole trend of the popular hypothesis underlying the Freudian doctrine and treatment tends to distract attention from the methods of experimental psychology in studying the normal and morbid workings of the brain and the rest of the nervous system. By such methods alone—not by assumptions and guessing—can an approximately true science and practice of medico-psychology be attained.

I am, Sir, yours faithfully,

July 2nd, 1921. H. BRYAN DONKIN.

THE ACTION OF TARTAR EMETIC IN BILHARZIASIS.

To the Editor of THE LANCET.

SIR,—In papers and annotations dealing with the cure of bilharzia with tartar emetic the point has been mentioned as to whether the worms or the eggs are first affected by this drug. For several years before the discovery of the tartar emetic cure I had been experimenting with various methods, and I had found one which in my hands gave very encouraging results. The starting point of this treatment was that I had observed that the urine of bilharzial patients, who from any cause had to be in bed on a fluid diet, improved considerably, but that soon after they received full diet again the previous condition was restored. I regarded this diminution of the external evidence of the bilharzial infection as due to the fact that, owing to the reduction in the quality of the portal blood, the worms were producing eggs in greatly reduced quantity. There can have been no question of any direct effect on the eggs from such treatment. The decrease was noticeable after about a week of treatment. I received confirmation, or what I looked on as confirmation, of this view from the fairly numerous cases of Egyptian fellaheens, who, being accustomed to live very frugally at home, complained, shortly after their arrival in the Sudan, where they were comparatively richly fed, that their urinary trouble, which before had been slight or unnoticed, had become tiresome and severe. In the course of my experiments I was able to reduce or increase the number of eggs passed practically at will.

My view which developed from these observations was that the usual time for a crop of eggs to take from the worm to the urine was five to seven days by the normal routes, but, of course, many eggs missed their way and took much longer to arrive. As the improvement in cases of bilharziasis takes place in much about the same time, I have always considered that the first effect of tartar emetic was to limit the production of eggs. In the article by Archibald and Innes in the *Journal of Tropical Medicine*, April 1st, 1919, on a so-called fatal result from tartar emetic treatment of bilharziasis in an Egyptian soldier who died of influenza, bilharzial eggs were found in the tissues but no worms could be discovered. Further, I find that the eggs in cases of *Bilharzia Mansoni* take a longer time than in vesical bilharziasis to become brown and granular, and this points again to the worms and not the eggs being primarily affected.

I am, Sir, yours faithfully,

V. S. HODSON,
Director, Khartoum Civil Hospital.

Khartoum, June 16th, 1921.

"CIRCULAR 202."

To the Editor of THE LANCET.

SIR,—Circular 202 on the Prevention and Treatment of Venereal Diseases, recently issued by the Ministry of Health, must, on the whole, be welcomed by those who believe that instruction in the methods of self-disinfection is a necessary health measure for the prevention of venereal disease. True, the circular states that the Government, because of the moral and social considerations involved, cannot give its "official support" to self-disinfection, yet, although self-disinfection in exact terms is disavowed, the principle of self-disinfection is strongly supported. This is seen in a later paragraph, where the Minister advises the issue of leaflets warning the public that it is the *duty* of all individuals who have incurred the risk of contracting disease *to cleanse themselves immediately and thoroughly, and thereby diminish the risk*. "Cleansing immediately and thoroughly," presumably with soap and water, is nothing else but a form of self-disinfection; the use of soap and water is neither so effective nor in many cases so readily available as is the employment of a portable disinfectant such as permanganate of potash, but the principle in the two cases is identical. The circular is therefore a distinct advance on past pronouncements of the Ministry on the subject.

But there is an even greater concession. Later on in the circular it is stated that the Minister considers it desirable to state that he is advised that a chemist does not commit an offence against any Act of Parliament by selling substances "capable of being used as disinfectants against venereal diseases." The clear inference to be drawn from this statement is that although the Government can give no official support to self-disinfection, yet the Minister is so alive to its value that he goes out of his way to add a paragraph directly encouraging the practice.

Although some of us may regret that the support given to self-disinfection is not so whole-hearted as we could have wished, yet allowance must be made for a Government which is attempting to deal with a subject upon which many people hold strong convictions. Experience has taught me to recognise that the advocacy of a policy of self-disinfection, on first consideration, always arouses strong opposition in certain quarters because of the conviction that it may prove an incentive to immorality, but I believe that if only the whole facts of the case are clearly and calmly discussed the opposition is to a great extent disarmed. I have formed this opinion as a result of the course of events in Portsmouth, and I am further strengthened in this opinion by the fact that the Special Committee of the National Birth-rate Commission, a body composed under the chairmanship of the Bishop of Birmingham of individuals whose names alone are a sufficient guarantee that no practice which tended to encourage vice would ever receive the slightest recognition, have reported strongly in favour of a policy of instructing the public in the methods of self-disinfection.

I regard Circular 202 as a step in the right direction, and I feel confident that it will not be long before a still further advance is made towards the policy so strongly advocated by the medical profession as being the best practical means for controlling the most serious menace at the present time to the health of the nation.

I am, Sir, yours faithfully,

A. MEARNS FRASER,
June 28th, 1921. Medical Officer of Health, Portsmouth.

DIGITALIS AND THE PERIPHERAL CIRCULATION.

To the Editor of THE LANCET.

SIR,—Dr. W. J. Grant, in THE LANCET of June 25th, still entertains misgivings in regard to many errors in physics which I am supposed to have committed. Let us define the issue. One of the facts I attempted to establish in my paper is that under the influence of digitalis we often get a decline in the systolic and diastolic pressure at the very moment when the output of the heart per single contraction is increased. I maintain that it is a physical possibility to obtain an increased volume of flow per unit of time through the circulation *under these conditions*. My reasons for such an assumption are as follows:—

1. During the systole the velocity of the blood in any part of the arterial circulation is about three to four times greater than during the diastole. It follows from this that if the systolic output is increased a greater amount of fluid in the arterial system circulates at a greater speed than under normal conditions. In these circumstances the total volume of blood leaving the arterial system in a given time might be greater than normal. On this supposition the arteries would contain less blood during the diastole than normally. But as the systolic pressure is made up, (other conditions remaining the same), of the volume of blood contained in the arteries during the diastole plus systolic output, it follows that this pressure might become lower than normal, although the single

systolic output is greater than before. I say, therefore, that provided the force of the heart is increased at each systole, one might get an increased flow of volume through the arterial circulation without a rise in the systolic pressure.

2. It is a fact that the lower (owing to increased cardiac output) the pressure in the veins near the heart, everything being equal, the greater the difference in pressure between the capillaries and the veins near the heart. I say that under these conditions it is possible to get an accelerated flow of blood through the veins per unit of time without a rise in the pressure of these vessels. (Dr. Grant says it is impossible to get an increase of flow through the veins without an increase of pressure on the venous side of circulation. He will be surprised to learn that, as a matter of fact, in cases where there is an increase of pressure in the veins, as in heart failure, the velocity of blood in these vessels is diminished.)

Dr. Grant may consider these facts an infringement of the elementary laws of physics, but they happen to be elementary principles of physiology. The issue is simple. Dr. Grant asks in his first letter "How it is possible to obtain an increased flow of volume per unit of time through the arterial system without either dilatation of the capillaries or rise of the blood pressure," and being quite sure that such a thing is a physical impossibility, he thinks that the conclusions arrived at in my paper are "improbable." I on the other hand say that if he had been acquainted with the elements of physiology he would have been unable to discover any of the numerous errors in physics which he thinks I am guilty of. It is for readers of THE LANCET to judge between us, and I am sure they will not be misled by empty phrases such as "physical laws."

I will not discuss the question raised by Dr. Grant in his second letter in regard to systolic pressure and output. He accepted my proposition in his first letter, and the discussion cannot be diverted from the original issue. All I will say is that his arguments in his second letter are as powerful as those in his first.

I am, Sir, yours faithfully,

Liverpool, June 25th, 1921. I. HARRIS.

ON DEATH FROM RESPIRATORY AND NOT FROM CARDIAC FAILURE.

To the Editor of THE LANCET.

SIR,—It has fallen to my lot on four occasions when operating for cerebellar abscess to have witnessed sudden and complete cessation of respiration, apparently from paralysis of the respiratory centre. In each of the four cases there was no interference with the cardiac centre, the pulse-rate being quite unaffected. In each case artificial respiration was kept up while the abscess was opened and drained with all possible speed. So soon as the undue intracranial pressure was relieved by the evacuation of the contents of the abscess cavity normal respiration was restored, thus confirming Sir Dyce Duckworth's dictum, "That the respiratory centre is clearly more sensitive than its neighbour the cardiac centre, and is the first to yield under undue intracranial pressure." These four cases are referred to in "Diseases of the Ear" (Milligan and Wingrave).

I believe that excessive intracranial pressure so constricts the lumen of the smaller blood-vessels of the brain that such a state of anæmia supervenes as to prevent the working of the various higher nerve centres, the most sensitive—viz., the respiratory—giving out first of all.

I am, Sir, yours faithfully,

Manchester, July 4th, 1921. WILLIAM MILLIGAN.

UNIVERSITY OF SHEFFIELD.—The following candidates have been successful in the Final Examination for the degree of M.B., Ch.B.:—May T. Bassett, Edgar S. Clayton, Ronald D. S. Inman, Richard T. Lee, Elsa F. Pagie, and Robert Platt.

Obituary.

H. WORK DODD, F.R.C.S. ENG.,

OPHTHALMIC SURGEON TO THE ROYAL FREE HOSPITAL.

Mr. H. Work Dodd, who died at his residence in Harley-street on June 28th in his sixty-second year, was born at Victoria, Vancouver Island, and was the son of the late Mr. Charles Dodd, of the Hudson Bay Company. He was educated at Norwich Grammar School, and entered at St. Bartholomew's Hospital, where his kindly disposition and genial personality made him many friends. Qualifying with the membership of the Royal College of Surgeons of England in 1881 he obtained the L.S.A. in the following year, and shortly afterwards became a licentiate of the Royal College of Physicians of London. He became a Fellow of the Royal College of Surgeons in 1888. As a young man he was for some time surgeon to a cable-laying telegraph ship, which gave him the opportunity of visiting many parts of the world and gathering useful experience. He thus acquired a taste for travel, and on many subsequent occasions spent his holidays in Norway and other parts of Europe.

He became a resident medical officer at the Royal Free Hospital, and in 1890 he was appointed ophthalmic surgeon and clinical lecturer on ophthalmic medicine and surgery in that institution, succeeding the late Mr. Grosvenor Mackinlay. This post he held until a few years ago, when he was appointed consulting surgeon. He was also consulting surgeon to the Royal Westminster Ophthalmic Hospital, and consulting ophthalmic surgeon to the West London Hospital for Nervous Diseases. He was a good operator and took a keen interest in his work. He was, perhaps, especially interested in the more uncommon diseases of the eye, and among the papers he wrote were those on Green Vision and Orientalism. He was a fairly regular attendant at the meetings of the Ophthalmological Society. At the Royal Free Hospital he was much liked both by his colleagues and by the students.

He leaves a widow, a daughter, and two sons, both of whom are doing well in the Indian Civil Service and in the Diplomatic Service respectively, and have evidently inherited much of their father's ability. His loss will be deeply regretted by a wide circle of personal friends. J. B.

DOUGLAS VERNON COW, M.D., B.C. CAMB., D.P.H.

Dr. Douglas Vernon Cow, of the Pharmacological Laboratory at Cambridge, who died on June 23rd, at Redruth, Cornwall, where he had gone for his health, was born in London in 1880 and was therefore only 41 years of age. He was educated at Harrow, and Trinity College, Cambridge, taking honours in the Natural Science Tripos in 1902.

After studying medicine at St. Thomas's Hospital he proceeded in 1905 to the M.B., B.C. degrees, and for the following two or three years took up general practice at Warwick, but in consequence of ill-health resigned and went for a voyage round the world. He returned to Cambridge in 1910 in which year he proceeded to the M.D. degree, and after working in the Pharmacological Laboratory obtained a Beit Research Fellowship. As a result of work in Vienna he published in the following year a paper on Diuresis. Later he became Assistant to the Downing Professor of Medicine and Examiner in Pharmacology at Cambridge.

Dr. Cow, who had been lecturer on pharmacology both at King's College, London, and at the Middlesex Hospital, wrote much on that and collateral subjects for scientific journals and for the proceedings of medical societies, and in 1920 published in the Students' Synopsis Series a volume on pharmacology. He leaves a widow, daughter of the late Mr. John Douglas Browne, of Belfast, but no children.

THE PRIVATE CLINIC SYSTEM.

ADJOURNED DEBATE.[1]

AT a general meeting of Fellows of the Royal Society of Medicine, held on July 4th, with the President, Sir JOHN BLAND-SUTTON in the chair, the adjourned debate on private clinic systems in this country took place.

Dr. A. LAPTHORN SMITH said he had often felt the truth of Sir William Osler's remark that it was a pity that the poor rich could not get as good hospital treatment as the very poor. Years ago, during a stay in Vienna, he had visited a large private hospital there, entirely occupied by paying patients who were graded in four classes, from noblemen to poor tradesmen. In the early morning more than 50 doctors attended, and as each one entered he registered his name on the notice board and marked it off as he left. A busy doctor sometimes made from 10 to 20 visits in that one building, for every one of which he was paid; consultation was speedily secured by a note to another doctor. Best of all, as he went out each doctor handed his list of patients to one of the bookkeepers, who at once charged up the visit on each patient's bill, so that before the patient left the hospital a cheque was handed to the doctor without the mention of money to the patient.

There is no reason, continued Dr. Lapthorn Smith, why such an institution could not be built in the neighbourhood of Regent's Park, or a little further out, provided the cost of a highly ornamental building, and the supposition that a large amount of capital was necessary, could be avoided. The building at Rochester, U.S.A., was plain wood, with a passage way up the centre, about 12 rooms on each side, and a large waiting-room opposite the front door, through which came several million dollars per year. At the Mayo Clinic the doctors had never to speak of money: the cashier finds out the amount of the patient's monthly income, and charges approximately that amount for professional services. He had just had a letter from a friend on the Mayo staff, saying: "Since you were here the Clinic has extended to such an enormous institution you would not recognise it at all. About 350 beds in each hospital." It had been doubted whether patients paid the heavy fees willingly; he had himself spoken to many who had paid large sums at the three private clinics, and they had had nothing but praise for the splendid examination.

The second private hospital of the group, at Battle Creek, Michigan, began with one doctor; in a few years he had a hundred-bed brick building, and employed assistants at fixed salaries; then he trained his own assistants, and now has a new hospital in addition to the old one. The patient picks a doctor, who states his case and the opinions which other doctors have given at different times; the youngest man gives his views first, and so on until it is the turn of the chief. The consultation may be adjourned for a special examination; the different reports are read next day and the best treatment decided on. At Baltimore the patients see the chief first at his consulting room, and are then sent to a nursing home. During the week five or ten specialists call on them there and make thorough reports to the chief.

Dr. C. O. HAWTHORNE pointed out that the terms private clinic, group medicine, and team-work had during the previous discussion received from different speakers widely different and even inconsistent definitions. When they are asked to vote for the group clinic, they were entitled to know which group clinic it was—the expensive institution suggested by Mr. Dickie, and endorsed by Dr. Lapthorn Smith, or the scheme now in operation under the control of Dr. Hurst, or the group of practitioners sketched by Sir Thomas Horder. His own attitude, continued Dr. Hawthorne, could be defined by submitting two propositions: first, that the spirit and aim of medical practice were entirely different from the spirit and aim of medical research, and that to argue that methods applicable and necessary in the one are prudent and necessary in the other, is obviously misleading; and second, that there was no objection to combination in medical practice, provided only that security was maintained for the welfare of the patient and for the authority and responsibility of the individual medical practitioner.

He proposed to examine briefly the schemes which were put before them at their last meeting. Mr. Dickie's proposition was the erection of a well-designed and well-equipped nursing home and hospital for paying patients, the whole scheme being justified on the ground that it could be made a paying proposition. Mr. Dickie, he said, thinks that medical practitioners ought to be financially interested in such an enterprise, but whether they agreed or differed, the answer did not involve any opinion relative to the issue between group practice on the one hand and personal practice on the other. Medical men might admire Mr. Dickie's schemes, feeling how desirable it would be to have institutions of this kind for their own use, and might sympathise with Mr. Dickie. Next, in the scheme explained as already in practice, Dr. Hurst had been able, by a happy conjunction of events, to organise, free from financial cares, a private hospital, where he could receive and treat patients sent to him for advice and care. In certain directions Dr. Hurst relied upon the coöperation of colleagues for the collection of particular groups of facts, and his enterprise was admirable. None the less, it remained true that the patients were committed to his care, and he was responsible for any advice or treatment given. If this was group medicine, group medicine was already in practice by every practitioner who sent a patient to a neighbouring laboratory for examination for T.B. But was Dr. Hurst's scheme a group? His scheme, if examined by Sir Thomas Horder's elaborate classification, must be marked good, but it was not a group. The third development advocated by various people had been the establishment of an organisation or institution where there would always be on hand an abundant supply of practitioners representing all the talents.

Dr. Hawthorne believed that such an ambition would prove both inefficient and unsound. The proposal was the outcome of an incontestable position—namely, that medical knowledge was so extensive, its details so various, that no single practitioner could pretend to compass it. The tendency of this proposition was to handicap the profession in the pursuit of an ideal, for the ideal medical adviser would be one who is able to deal with his patient as a whole. A sound policy should surely aim at getting as near this ideal as possible, by directing that the training of a medical practitioner, who desires to accept the responsibility of giving advice to patients, should be along the broadest possible lines. But the group system had a tendency in exactly the opposite direction, urging men to be competent, not as advisers of patients, but as examiners of organs. It was said that this group system was the application to private practice of the methods universally adopted in hospital practice, but the hospital patient was not a patient of an institution; he was the patient of an individual, personal, responsible medical practitioner; this medical practitioner was a free man who could request the opinion of a colleague or colleagues on any patient under his care, and, equally, he could refrain from doing so, and in any event he would act upon his own judgment and decision. Again, the hospital officer might request the assistance of an expert in the X ray department or the laboratory, in the observation or collection of a certain group of facts, but the adjustment of these facts to others rested entirely with himself, and the final verdict on the patient remained in the hands of the medical practitioner to whose care he was committed. Still more, the hospital officer was free to develop his own knowledge and skill in any direction and to any extent he thought good, and thus he might,

[1] The opening of the debate was reported in THE LANCET of June 25th (p. 1358).

to a steadily increasing extent, free himself from dependence upon the so-called specialist.

And with reference to his own development, under the pressure of the rights of colleagues he would be compelled strictly to confine himself to his own rigidly defined department; and where would the limit of this division of department end? The more muddled the department, the greater the restriction upon the scope of each individual member of the group; it would follow that no medical practitioner in the group will be able to act as the medical adviser of the patient. The group system was bad for the practitioner of medicine, or at least for those practitioners of medicine who desired to qualify as advisers of patients. He would not vote for the motion to be presented, but would himself propose a motion to be handed up directly.

Mr. A. W. SHEEN disagreed with Dr. Hawthorne's contention that medical practice is a different thing from medical research. In his opinion every piece of medical practice was a piece of medical research. Patients differed from one another, no two being alike, and it must be remembered that the best kind of research was research on the patient. As to another point made by Dr. Hawthorne, it was obvious that any specialist should be a good general practitioner first, and Mr. Sheen expressed his belief that no specialist ever shut himself in a water-tight compartment. Mr. Sheen disagreed with those speakers at the previous meeting who said that it was not desirable that group treatment should take place in association with hospitals. This statement was perhaps too broad. At the present moment outside interference and State control was dormant in relation to the medical profession, but Mr. Sheen fancied it was only dormant, and that we should hear later of primary health centres and secondary health centres, and that the treatment of private patients at these centres would have to be considered. He reminded his audience that Great Britain includes also outlying parts such as the Outer Hebrides; the problem of the application of group systems to all parts of the country would have to be considered. Vested interests would demand also consideration. An endeavour to disturb nursing homes would lead to difficulties, complications, and troubles. Mr. Sheen said that he personally would like to see the country cut up by counties, big towns, districts, and what not, and be the seat of a series of experiments. He did not like to see any sort of cast-iron system suggested for the whole country, for the circumstances differed so much; the best of these experiments would survive. It might be that in some cases group clinics would arise. In a good many parts of the country there were small hospitals with private wards, where the services of consultants were available, and these in many respects satisfied the requirements of a clinic. In some places the British Red Cross Society had established hospitals, and had put them at the service of the public under certain conditions. In other places hospitals had been started by private generosity. The private wards in St. Thomas's and Guy's were a form of clinic. All these activities were going on, and Mr. Sheen thought we ought to develop them, to enlarge them, and to make clinics of them. He considered that the profession ought to do something more than give the idea of clinics mere lip service. The public had got hold of it; the State had got hold of it, and reform from within was better than reform from without. If we did not try to do something for ourselves, somebody else would try to do something for us. As a result of the old days of the clubs came the National Insurance Acts and the panel practice which, in Mr. Sheen's opinion, was a very unsatisfactory thing. It was obvious that the individual practitioner would never die; he would always be wanted. Mr. Sheen looked forward to the time when the individual practitioner would become far more than he is at present the instrument of preventive medicine. He would go into patients' houses, not to cure them when they were ill, but to prevent them from being ill, and Mr. Sheen imagined it would be a very lucrative business. He would like to see these clinics arising, either as private clinics, or in association with hospitals, large or small. In time these clinics might form part of the student's curriculum, and we should then have a reversion to a better type of apprenticeship. Mr. Sheen would support the resolution because he thought, at all events, it would do no harm, and it would give an impetus to action which, in the end, could be only for the public and professional good.

Mr. C. F. HARFORD said that it was not to discuss the details of schemes but the real principles that the meeting was held; he desired most strongly to support the motion that some sort of group system should be created. Our experiences in connexion with the war had greatly emphasised the need for some sort of group work, and the abolition of the individualism which had been the curse of the profession. It was better to make mistakes than to do nothing. Mr. Harford believed in every kind of reform, but it was a mistake to have cut-and-dried schemes. He believed in the principle of experiment and in attempting to profit from experience gained. Since the war there had been a revision of our hospital system.

A good deal had been heard of municipal clinics; something better in the way of constructive work was wanted. The hospital system, pensions work, clinics for the sick—all these various departments of health activities arose in a very haphazard way. As to private consulting practice, were we to regard Harley-street and Wimpole-street as ideals? The consultants had to treat private patients in a room which was really a gentleman's study, and patients with horrible diseases waited in many cases in the room where the family of the consultant was going to dine, unless he was happy enough to rent a room in somebody else's house. This state of things should not continue.

Mr. Harford recommended a careful study of the Report of the Consultative Council of the Ministry of Health. Lord Dawson's minute was, in his opinion, the most statesmanlike proposal that had been put on paper. The only thing the profession had been able to do was to attempt to pick holes in it. Why should the pathological work and the examination of specimens and testing of urine be done separately for every place and for every centre? The two fundamental difficulties were the ethical question and the economic question. If we could get a group of men who would trust one another a start could be made. Mr. Harford's own department of ophthalmology was practically in the hands of the opticians. A certain number of cases were being seen by the specialist, but the ophthalmic work of the country was being done by the opticians, though it was most important a competent ophthalmologist should make an early diagnosis. Patients all over the country were trusting themselves to the opticians. It was said that there were not enough ophthalmologists to do the work. If this were so it was because of the difficulty experienced by a young man in keeping himself while waiting for a practice. Mr. Harford suggested that the medical schools might register the names of men who would be ready to work together, and thus groups might be started among the younger men.

Dr. STANLEY GEORGE spoke as one engaged in general practice, and did not intend that any of his remarks should be taken as an apologia for the medical practitioners. He pointed out that it was important to the individual patient that as little disturbance as possible should take place in his normal surroundings. A patient slightly ill was treated and restored to health more comfortably and with less disturbance in his private home, but in the graver forms of disease he was better looked after in a well-equipped institution. It was not sufficient merely to improve facilities for dealing with the accidents of life. The ultimate goal was prevention rather than cure. To achieve this goal the energies of all workers must be combined with all possible instrumental aid.

Any scheme of advancement must be such as would assist the practitioner to fulfil his rôle with the greatest advantage. He would not be content to send his patient away, because in this case he had to rely entirely on someone else, but would wish to be in a position to help to make the diagnosis. If private clinics were to be adopted the building should be suitably situated in the districts where they are intended to serve, and should contain ample accommodation. They need not necessarily have elaborate instruments, which were only suitable for very skilled work in university laboratories, but the staff of the clinics should include members of all branches of the profession, and should undertake investigation as to the best methods of prevention and control.

DR. CHARLES GRAY said that after many years' experience of private practice he would like to say that though we are out first and last for the good of our patients, we are not giving them what we ought to give. The problem remained as to how this was to be remedied. Medicine had extended so enormously that it was quite impossible for any single man to give the patient what he ought to have in any case requiring thorough investigation. Team work was now essential, and also places where patients could be sent for any elaborate investigation which might be required, where also the services of 10 or 20 specialists would be at their disposal if needed. The patient would never do without a personal medical adviser in this country; a single person would have to gather the threads together and advise the individual. But places for residential observation courses were required, and if the profession did not supply these they would be started from outside, without the same benefit to medical men in their relations to patients.

DR. CARNEGIE DICKSON said that as a consulting pathologist he refused to see any patient who came direct to him, and he was thus already a member of an enormous number of little teams. He also practically, though not absolutely, refused to examine specimens sent to him by doctors unless they also gave some clinical information about the case. The pathologist was not a qualified laboratory assistant, though many apparently considered him such. The consulting pathologist desired to be put into touch with patients, and thus to be enabled to apply his previous experience to every new case. Some medical men had not the least idea how bacteriological specimens should be collected, and about 50 per cent. of the specimens received might be discarded without examination, as far as the good of the patient was concerned. Dr. Dickson held that after various examinations have been made there should be a round-table consultation. He had talked over the idea of group clinics for several years with various groups of men. One little group got to the length of having plans of such a hospital made up; builders' estimates were gone into, and a very powerful group was got together. Much discussion ensued, but the difficulties appeared almost insuperable. In Dr. Dickson's opinion, the difficulties had not all been tackled at the present discussion. He thought most of them were agreed that group work was good and would have to be adopted soon, but the difficulties had not all been faced. The question of remuneration and fees, of course, was always a complicated one. The ordinary fee of the surgeon was a distinct difficulty, because the surgeon often makes a considerably larger fee than the physician upon whose judgment the operation depends. As an independent speaker, Dr. Dickson expressed his opinion that the physician should have a larger share. Another difficulty, was whether there should be financial control over nursing homes. Most of those who had discussed the matter with him were of the opinion that doctors should have no finger in that pie. Those who advocated group clinics did so for the sake of their patients as well as for their own sakes. Dr. Dickson gave examples in support of his contention that the pathologist's life would be rendered much more easy, and that he would be able to render services to the patient which would be much more valuable, under the group system.

SIR THOMAS HORDER said that summarising the debate would almost come to re-reading some of his introductory notes. He thought he need say nothing in regard to those speakers who had laboured the main principles enunciated in the first meeting. He thought that the meetings had been justified. All that those fellows of the Society who had been for some time trying to arrange a debate of this kind had in view was to ventilate the whole question of private clinic systems, and that had been done, even to the extent of some healthy criticism on the part of Dr. Hawthorne. Referring to Dr. Hawthorne's amendment Sir Thomas Horder spoke of Dr. Hawthorne's complaint as to the lack of preciseness in the details of any scheme laid before the meeting. It was not intended to be precise in respect of detail: how could they be precise in matters that had never been discussed? Was it not more likely that the more detailed the scheme had been, the more severely would it have suffered criticism? It had already been pointed out that Dr. Hawthorne's criticism in regard to the distinction between practice and research was an utter fallacy. Was not one modern tendency—which we all believed to be a good one—to combine rather than to divorce practice and research? Was not the recent magnificent work of the Medical Research Committee due entirely to the practice afforded by the war? Could we have had that great contribution to medical research had there been no war. Dr. Flexner, of New York, had told the speaker that more and more did it become obvious that if research was to be helpful it must be combined with and conducted in the same building as practice. Sir Thomas Horder said he had referred to the enormous advantage that group medicine would confer upon the progress of medicine by the facilities of research and additions to medical knowledge which it afforded. Reference had been made to the Mayo Clinic at Rochester. What Sir Thomas Horder had seen in the United States in regard to group practice had damped rather than warmed his ardour. The clinics in the States were so enormous; moreover, they were not run with that philanthropic spirit and freedom from financial interest which we regarded as so important. In his opening remarks Sir Thomas Horder had said that a personal clinic was a clinic in which one man was paramount; he determined what investigations should be added to his initial survey of the case, and he was responsible, therefore, for the diagnosis and treatment. That personal clinic had come; there were two large and successful personal clinics of that kind in this country.

As to a group clinic, each member of the group should be interested in the whole work of the team; it should, for preference, work under the same roof; it should have all the conditions that Dr. Hawthorne referred to. Group clinics of that kind had not yet arrived, and, therefore, it might seem premature that a resolution should be moved which does little more than express a pious opinion. The resolution before the meeting was—

> "That in the opinion of the meeting the time is ripe for the formation of group clinics in this country, and that sympathetic encouragement should be given to them by the profession and by the governing bodies."

DR. HAWTHORNE, in moving an amendment, wished to dissipate the suggestion that he was opposed to medical research. In scientific research, medical or otherwise, there was only one aim, the discovery of truth. The picture of the group clinic as it was presented at the first meeting had now taken on a somewhat different aspect, and its meaning was still doubtful. It certainly did not mean the scheme which Dr. Hawthorne himself cordially endorsed and favoured—namely, the scheme which was carried into practice by Dr. Hurst. Sir Thomas Horder had said that this was not a true group. The only scheme on which the vote would apparently be taken was the particular scheme which Sir Thomas Horder

defined—that is to say, a group in which no one individual had full responsibility and authority in the case except this vague person called an assessor; instead of the personal relation of an individual practitioner in charge of a sick man it was proposed to offer him the cold and carefully calculated effort of an assessor's summing up. The amendment was a non-committal one, and Dr. Hawthorne knew of no obstacle to the formation of nursing homes, where practitioners might take charge of patients and might secure the assistance of experts, except the financial one. If someone were able to provide two men who were ready and willing to find the necessary money, without any sort of financial gain, then, indeed, we might look forward happily to the development of a suitable institution. Dr. Hawthorne moved the amendment:—

"That until a precise definition and details are submitted, this meeting prefers to abstain from pronouncing an opinion on any suggested modification of the methods of medical practice."

Dr. M. I. FINUCANE, in seconding the amendment, said that he thought the whole discussion was more or less academic and theoretical, and did not practically apply itself to the general practitioner and his wants. All agreed that team-work was the best, but as Dr. Hawthorne had said, the finance of this matter had not been considered at all. Lord Dawson's scheme was, he thought, a sound one, and he had no doubt that this group system would come about, but no details had been discussed, and if the general practitioner was to be asked for his encouragement some practical scheme must be submitted.

Dr. CHARLES GRAY pointed out that Dr. Hawthorne said there was no objection to starting this clinic system. The great objection was that the present position of the general practitioner, and also the view of the profession at large on this important subject had not been taken, and the object of the meeting was to get the view of a proportion, at any rate, of all the medical practitioners. There seemed to be no alternative between the two schemes. The only alternative was a State system of medicine in which all became paid units.

Dr. FINUCANE asked whether the object of the meeting was to strengthen the Government in promoting a system of clinics. If Sir Thomas Horder's resolution was passed it would be interpreted as the voice of the Royal Society of Medicine.

The PRESIDENT then put the amendment to the resolution to the meeting, and it was lost.

Sir THOMAS HORDER'S resolution was carried.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

The Question of Federation.

A MEETING of the Irish Medical Committee was held in the Royal College of Surgeons, Dublin, on Thursday, June 30th, Dr. J. M. Day in the chair, when Mr. R. J. Johnstone was re-elected chairman. At the conference which began its sittings in the offices of the British Medical Association on Tuesday last, Mr. R. J. Johnstone and Dr. W. O'Sullivan have been appointed to attend. For two years negotiations have been proceeding with a view to organising the medical profession of Ireland into one association, possibly in affiliation with the British Medical Association; and it is hoped that at a meeting where the overseas branches of the Association and its Federal Committees, the Irish Committee of the British Medical Association, the Joint Organisation Committee (Ireland), and the Irish Medical Association will all be represented, some plan of policy may be arrived at.

The Voluntary Hospitals.

At a meeting of the President and Fellows of the Royal College of Physicians of Ireland, held on July 1st, the following resolution was carried unanimously:—

"The President and Fellows of the Royal College of Physicians of Ireland can find no justification for the refusal of the Government to give any financial relief to the voluntary hospitals of Ireland, while making a grant of £500,000 to the voluntary hospitals of Great Britain: the grant is intended, not as a provision for the future, but to relieve the hospitals from the position of difficulty to which they have been brought by the abnormal economic conditions of the past few years, conditions which pressed as heavily on hospitals in Ireland as on those in Great Britain. The President and Fellows, therefore, urge upon the Government the justice of making a grant to the Irish voluntary hospitals similar to that promised to the British voluntary hospitals."

A resolution to the same effect has been passed by the Irish Medical Committee.

An Honorary Degree for Prof. Edward Taylor.

The University of Dublin has paid a well-deserved compliment to the Regius Professor of Surgery in conferring on him the honorary degree of Master in Surgery. Prof. Taylor has been connected officially with the School of Physic in Ireland for nearly 30 years, first as examiner in anatomy, then as professor of surgery, and for the past five years as Regius Professor. His treatises on Applied Anatomy and on Operative Surgery are well known to all.

The Senate of Southern Ireland.

Sir William Taylor, K.B.E., a past-President of the Royal College of Surgeons in Ireland, has been nominated by the Lord-Lieutenant a Senator of the Parliament of Southern Ireland, under the provision of the Government of Ireland Act directing that 17 representatives of commerce, labour, and the scientific and learned professions should be nominated. As far as we know, no other medical man has been similarly distinguished.

CZECHO-SLOVAKIA.

(FROM OUR OWN CORRESPONDENT.)

The Hlava Institute.

THE Medical School of Prague has recently opened a new and first-class modern building containing the institutes of pathological anatomy, bacteriology, and legal medicine, with all facilities for teaching and research. It is popularly named Hlava's Institute, after Prof. Jaroslav Hlava, its founder. The building was begun before the war, during which it had to be discontinued. The Ministry of Public Instruction in the new Republic has spared no effort to make the equipment and opening of the institution possible. On the day of opening a very warm ovation was accorded to Prof. Hlava, who is the senior member of the staff of the Medical School in Prague, and has been recently honoured by the French Academy of Medicine, having been nominated a corresponding member.

Czecho-Slovak Watering-Places.

The Czecho-Slovak watering-places are reviving their pre-war reputations. It is not widely realised that Carlsbad, Marienbad, &c., are within the boundaries of the new Republic; direct sleeping-car service has been established from Vienna and Paris, and the Czecho-Slovak authorities have made every effort to facilitate the visits of foreigners to the famous watering-places. Former visitors are now resuming patronage discontinued because of the war.

Infant Welfare.

In the autumn of 1920 Lady Muriel Paget's Mission began to organise infant welfare in Slovakia. Some 11 infant welfare stations have been opened in one of the poorest sections of the province; in coöperation with the League of Red Cross Societies a model children's hospital has been established which will serve as centre for the scheme. The English

personnel of the Mission are training local workers to continue its administration when the Mission leaves the country on Jan. 1st, 1922. The work has been very successful so far, and the interest which the Slovak peasants have shown in it has been most encouraging. Dr. Roger P. Stewart, of London, is in charge of the work under the direction of a committee on which Lady Muriel Paget's Mission, the League of Red Cross Societies, and the Czecho-Slovak Red Cross and Ministry of Public Health are represented.

A Medical Strike.

The Czecho-Slovak physicians who serve as medical officers to insurance associations went on strike on May 1st because the associations refused to double the fees paid by an insured person for attendance. The Czech physicians claim that German physicians are receiving such fees from the German associations, and consider themselves entitled to the same. On the other hand, the associations claim that a contract has been made with the physicians up to the end of the year 1921. The strike has already lasted for more than a month, but a speedy settlement is not probable, as the medical profession is well organised and follows very closely the direction of its central organisation. On the other hand, the insurance associations claim that increasing the fees to the physicians would mean financial ruin to the associations, involving a breakdown of the whole insurance system, in which 90 per cent. of the population are included.

Prague, June 15th.

CONTROL OF VENEREAL DISEASES.

Registration of Syphilitics.

A census of the syphilitic fraction of a community may seem an impossible feat, owing to the subterranean character of the disease and the natural disinclination of the persons concerned to figure in such a census. But it is obvious that if such a census were feasible, and kept up-to-date year by year, our knowledge of this disease and our ability to treat it successfully would ultimately be much increased. In a recent paper, Dr. O. Jersild[1] has shown that such a system of registration of the syphilitic is not simply a counsel of perfection, but can be put into effect in a small country such as Denmark, without disconcerting intrusion into the patient's privacy. But it must from the outset be made clear that a system which is perfectly feasible in a country like Denmark may be quite unworkable in a larger and less compact community. In Denmark, where a system of registration of the syphilitic has existed for about half a year, Wassermann's reaction is carried out only in one institute, and under State control. This centralisation of the Wassermann reaction is probably unique, and it would be difficult to overrate the importance of this point. It means that in Denmark, at any rate, the prestige of this reaction has not been undermined by uncontrolled, semi-professional work, and the fact that 41,093 Wassermann tests were made in 1920 at the State Serum Institute, shows that hospital authorities and practitioners make extensive use of the Institute for this purpose.

The machinery for the Wassermann reaction being centralised, it was comparatively easy to evolve a system of registration centring about this reaction. The Wassermann forms have been worded so as to serve the double purpose of a serological report and registration, and the two following principles have been conscientiously followed: (1) Notification should be so organised that it would work almost automatically without compulsion or discomfort to anyone whenever a syphilitic changes his doctor or address; (2) owing to the confidential character of the matter there should be absolutely no chance of personal identification at the central office, where, however, it must be possible to classify the available data accurately and without overlapping. The function of the central office is, in short, that of a telephone centre, enabling one doctor to get into touch with another through a practically automatic and impersonal medium. In time it will be possible for a doctor to learn the subsequent fate of a patient whose disease he treated in its early stage, and neurologists, oculists, surgeons, and physicians will have a guide enabling them to learn not only whether a patient under their care has or has not contracted syphilis earlier in his career, but also the nature of the specific treatment he has received, and other instructive information contained in his registration dossier. As Dr. Jersild points out, registration of syphilitics, if it is to fulfil its functions adequately, should not merely yield statistical information as to the increase or decrease of new cases in a community, but it should also enable the physician to trace the patient's career from the first appearance of a chancre to his death. It should also ensure continuity of treatment, however much the patient may flit between hospitals and from one physician to another.

The five following identification data are entered on the registration form: (1) Sex; (2) birthday and year of birth; (3) the first letter of the patient's surname, a hyphened surname being indicated by the first letter after the hyphen; (4) the date on which the disease was first diagnosed or treated; (5) the name of the physician or institution beginning treatment. By the inclusion of the year of birth of the patient, it will be possible in a few decades automatically to omit from the register a certain number of patients, and thus the register will not be unnecessarily overcrowded. In practice, one shortcoming has already been detected in this system of registration. Syphilologists are apt not to make use of Wassermann's test during the first years after infection, for at this stage a negative Wassermann may prove mischievous, as it may lead to the patient neglecting treatment. The syphilologist also is less dependent than his colleagues on a serological diagnosis. But, unfortunately, his distaste for Wassermann's test early in the patient's career means that many syphilitics evade registration just at the period in their lives when it would be most useful, to themselves in particular. To overcome this difficulty, syphilologists—i.e., heads of V.D. clinics—have been supplied with special registration forms. Although registration has existed only half a year, about 10,000 persons have already been entered on the Serum Institute's register, and its efficiency has been tested in several instances. As an instructive example of the workings of this system, Dr. Jersild refers to a patient whose dossier showed that, though he masqueraded as a new case at Dr. Jersild's hospital, he had been treated there at an earlier date.

A Hostel for Infectious Cases.

The second annual report of the Royal Free Hostel for Women and Girls has just been issued. The hostel was opened in June, 1919, at 24, Gloucester-road, Regent's Park, London, N.W., for the care of girls and women suffering from venereal diseases in an infectious stage. Ten beds are available in rooms of one or three beds. The patients are drawn chiefly from those attending the Royal Free Hospital V.D. Clinic, and are selected by the medical officer to the clinic; but cases from any part of London or the country can be received under certain conditions.

Sir Thomas Barlow is the chairman of the committee of the hostel and the medical members include Miss Aldrich Blake, Lady Barrett, Sir Francis Champneys, Dr. Dorothy C. Hare, Dr. T. S. Higgins, Dr. A. G. Phear, Dr. Ethel Vaughan Sawyer, and Dr. Margaret Rorke. The aims of the committee include not only care with treatment and isolation during the infectious period, but the after-care of those discharged from the hostel. The great importance of after-care is recognised. Even in the most promising cases physical and mental recovery often takes several months, and much help must be given if the

[1] Ugeskrift for Laeger, June 2nd, 1921.

individual is to become a useful citizen. The hostel is closely associated with the Royal Free Hospital, but financially it is an entirely independent undertaking. Between April 1st, 1920, and March 31st, 1921, 65 girls passed through the hostel, the average length of stay being 39·19 days.

The occupations and disposal of these girls were as follows: the average age of patients was 22·5 years, and their previous occupations were domestic servants, 21; factory or business, 10; clerks, 7; women's services, 7; shop-hands, 6; no occupation, 5; waitresses, 3; prostitutes, 3; married, living at home, 2; companion, 1. Of these 19 returned to former employment, 12 are out of work, 8 have gone to fresh work or training, 4 have been sent to various homes, 3 have returned to prostitution, 3 have been lost sight of, 3 have married, 3 are at home with no occupation. 1 mentally deficient, has been taken under M.D. Act, 1 mentally deficient is with her sister, and 8 are still in the hostel. Patients attend the out-patient department at the Royal Free Hospital twice weekly. In addition, individual medical treatment such as douching is carried out by the sister-in-charge, as instructed by the doctor. Much improvement in general health is noticed while the girls are in the hostel, and their increase in weight is often astonishing. The attendance records at hospital for hostel patients are satisfactory. A few cases admitted from hospitals other than the Royal Free continue to attend their own clinics. Every girl is in the hostel by her own choice, and is free to leave if she will. Most settle down quickly, but some are unhappy and depressed at first, or are physically too ill to take an active part in the life of the home. The fundamental idea in the ethical teaching given is to develop such principles as the girls already possess, and to lead their often distorted views of life and morals into right channels. Open discussion on questions of religion and social conduct is encouraged. The lighter work of the house is done by the girls, under the supervision of the house matron. In the afternoons they rest or go out, and in the evenings they make their own clothes, or learn handicrafts, such as basket-making or raffia work. The staff consists of the sister-in-charge, who is a fully trained nurse, and two assistants, a house matron and a kitchen matron. Of the 95 patients who have left the hostel since it was opened, definite news has been received of 92. The cases may be grouped as follows: doing well at present, 57; doubtful at present, 18; no good at present 10; lost sight of, 3; in homes needing permanent supervision, 5; certified under Mental Deficiency Act, 2. Of those classed as "doubtful" or "no good," several were only in the hostel a few days, and owing to their harmful influence on the other inmates, were returned to the senders or removed to the infirmary. It is regarded as impossible to furnish a report which shall be permanently accurate. On the whole, however, those considered as satisfactory have remained so, and of the rest some have become satisfactory, and some of the most unpromising have changed their mode of life, at least temporarily.

The expenses for the year have amounted to £1026. The receipts (which include the balance in hand at the beginning of the year of £204) amount to £1302. The estimated outlay for the coming year is £1120. The London County Council have recommended that the Ministry of Health should make a grant of £400, an increase of £100 on the previous year's grant. Patients' payments may be expected to bring in £100. This leaves a sum of £620 to be obtained in subscriptions and donations. The committee express their conviction that if a wider public could realise the great importance of the work done, sufficient financial help would be forthcoming. Medical practitioners who are desirous of securing the admission of a patient to the hostel are invited to refer the case with a note to the medical officer of the Royal Free Hospital V.D. Clinic. Patients from other hospital clinics in the district are admitted and arrangements made for them to continue under the care of their own medical officer. Applications for vacancies should be made to the Almoner, Royal Free Hospital, Gray's Inn-road, London, W.C.1. The most suitable cases for admission to the hostel are young girls. Married women, professional prostitutes, or remand cases are not usually suitable. Cases of pregnancy are not admitted after the early months. Patients are kept in the hostel, if possible, until their condition becomes non-infectious, and suitable arrangements have been made for their return to work, or to their families. The circumstances of patients are inquired into and they are required to contribute towards the cost of their maintenance if in a position to do so, but no patient is refused on grounds of inability to pay. A maximum charge of 35*s.* per week is made; the average charge is 15*s.* Further information regarding the hostel may be obtained on application to the Almoner, Royal Free Hospital, Gray's Inn-road, London, W.C.1, or the Hon. Secretary, 6, Drayton-gardens, London, S.W.10.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Lieuts. (ret.) to be Surg. Lieut.-Comdrs. (ret.): A. L. Robinson, G. A. Jackson, and W. L. Cowardin.

Actg. Lieuts. to be Lieuts.: H. G. Marsh, P. R. Enright, and F. W. Langford.

ROYAL ARMY MEDICAL CORPS.

Capt. and Bt. Maj. W. F. Christie retires, receiving a gratuity, and is granted the rank of Maj.

Capt. W. Walker and Capt. P. J. Ryan relinquish the actg. rank of Maj.

Capt. H. A. Hill, from R.A.M.C. Spec. Res., to be Lt., with the temp. rank of Capt.

Officers relinquishing their commns.:—Temp. Capts. retaining the rank of Capt.: W. M. Muirhead, F. Whitby, H. Abernethy, and B. N. Sinclair.

SPECIAL RESERVE OF OFFICERS.

Capt. R. Magill to be Maj.

TERRITORIAL FORCE.

Maj. W. Bowater to be Lt.-Col. and commd. 1st S. Mid. Fd. Amb.

Capt. A. P. Thomson resigns his commn. and is granted the rank of Maj.

Capt. W. J. Lacy-Hickey and Capt. J. G. Hayes resign their commns. and retain the rank of Capt.

Lt. J. P. Kitson (late R.A.M.C.) to be Capt.

The King has conferred the Territorial Decoration upon the undermentioned officers: Lt.-Col. D. L. Hamilton, 2nd H. Counties Field Amb.; Lt.-Col. C. L. Isaac, 3rd Welsh Field Amb.; Maj. G. R. Wilson, attd. 8th Bn. Manch. R.; Maj. D. H. Weir, attd. 4th Bn. North'd. Fus.; Maj. W. F. McAllister-Hewlings, attd. N. Mid. A.S.C. (ret.); and Maj. E. L. Rowse, 1st Lond. Fd. Amb.

TERRITORIAL FORCE RESERVE.

Lt.-Col. (Bt.-Col.) C. J. Jacomb-Hood, having attained the age limit, is retired, and retains his rank with permission to wear the prescribed uniform.

The King has conferred the Territorial Force Decoration upon Col. Sir R. H. Luce, K.C.M.G., V.D.

DEFENCE FORCE.

Temp. Capts. relinquishing their commns.: G. M. Campbell and W. T. Briscoe.

ROYAL AIR FORCE.

Flight Lts. to be Squadron Leaders: D'Arcy Power, J. Rothwell, K. Biggs, and A. J. O. Wigmore.

Flight Lts. to be Hon. Squadron Leaders: A. E. F. F. Huntsman and G. D. Kerr.

INDIAN MEDICAL SERVICE.

Maj. J. J. Robb to be Lt.-Col.

Temp.-Lt. H. R. Rishworth (since relinqd. his commn.) to be temp. Capt.

Medical News.

UNIVERSITY OF CAMBRIDGE.—At examinations held recently the following candidates were successful:—

DIPLOMA IN MEDICAL RADIOLOGY AND ELECTROLOGY.

Part I., Physics and Electrotechnics.—Frank M. Allchin, Stanley Colyer, Geoffrey Fildes, Alexander Flett, Harry Gardner, Wilfrid Garton, Arthur H. Laird, Traian Leucutia, Dalziel B. McGrigor, David M. Muir, Henry E. Oakeley, Pieter Johann Olivier, Bertram Shires, Hendrik Willem Johannes van Dijken, John D. White, George D. Whyte, William P. G. Williams, and John R. Wylie.

Part II., Radiology and Electrology.—Frank M. Allchin, Stanley Colyer, James P. S. Dunn, Geoffrey Fildes, Harry Gardner, Wilfrid Garton, Arthur H. Laird, Traian Leucutia, Dalziel B. McGrigor, David M. Muir, Henry E. H. Oakeley, Pieter Johann Olivier, Bertram Shires, Hendrik Willem Johannes van Dijken, John D. White, George D. Whyte, W. P. G. Williams, and John R. Wylie.

UNIVERSITY OF OXFORD.—At recent examinations the following candidates were successful:—

EXAMINATION FOR DEGREE OF M.CH.

George Perkins, Hertford.

SECOND EXAMINATION FOR DEGREE OF B.M.

Materia Medica and Pharmacology.—Murray McCheyne Baird, New; Owen D. Ballinger, University; Weldon Champneys, Oriel; Edward F. Chapman, Magdalen; Harry N. K. Elphick, New; Robert Van Buren Emmons, New; Reginald V. Facey, Brasenose; Humphrey A. Gilkes, Christ Church; John R. B. Hern, New; Robert F. Johnstone, St. John's; Cyril R. Lane, Pembroke; Walter J. E. Lupton, New; Peter H. Martin, New; James D. Mills, Lincoln; Eric H. Watkins, Hertford; Norah E. Bodkin, Society of Oxford Home Students; Katharine M. Hodgkinson, Somerville; and Constance M. Ottley, Society of Oxford Home Students.

Pathology.—John W. Alden, non-collegiate; Owen D. Ballinger, University; Walter H. Butcher, St. John's; Weldon Champneys, Oriel; David S. Davies, Magdalen; John H. Fletcher, Trinity; Duncan G. Leys, Balliol; Horace D. Pavière, Christ Church; Maurice E. Shaw, New; Eric H. Watkins, Hertford; Bernard W. Williams, Exeter; and Norah E. Bodkin, Society of Oxford Home Students.

Forensic Medicine and Public Health.—Thomas H. Cathrall, Trinity; Malcolm H. Mackeith, Magdalen; Henry A. Osborn, New; Maurice E. Shaw, New; Cecil H. Terry, Balliol; Clement J. L. Wells, St. John's; and Dorothy J. Collier, Society of Oxford Home Students.

Medicine, Surgery, and Midwifery.—Walter H. Butcher, St. John's; David G. T. Cross, St. John's; Charles F. T. East, New; William E. Hayes, New; Edward G. T. Liddell, Trinity; Malcolm H. Mackeith, Magdalen; and Howard L. Rayner, Balliol.

Mr. P. H. Martin, New College, has been elected to the Theodore Williams Scholarship in Anatomy. The scholarship is tenable for two years, and is of the annual value of £50.

UNIVERSITY OF ST. ANDREWS.—The following candidates have been successful in examinations recently held:—

THIRD PROFESSIONAL EXAMINATION FOR DEGREES OF M.B., CH.B.

Medical Jurisprudence and Public Health.—Frank E. Anderson, Colin R. Baxter, Archibald J. Campbell, Cora C. Campbell, Gurbaksh Chawla, David C. Clark, James Craigie, William M. Cumming, Jean M. Davidson, Violet C. Dobbie, Ruby N. Foggie, Donald S. Greig, Charles R. Henderson, Norah M. Lindberg, Norman McLeod, Jean H. Morton, Janet Muirhead, Robert Norrie, Sydney S. Ogilvie, Alan Pride, Alexander B. Richardson, Agnes H. T. Shepherd, Lucy C. Simpson, Bhagwant Singh, Edith M. D. Smith, Blanche D. S. Spence, Janet O. Stephen, Arthur Tateson, William Thomson, Frances H. Watson, and Thomas Wilson.

Materia Medica and Therapeutics.—Monawar K. Afridi, George F. G. Batchelor, Colin R. Baxter, Norman T. Brown, David R. Cameron, James Dallas, Ellen Douglas, Howard H. A. Elder, Andrew A. Finnigan, Jessie H. Fitchet, John R. Graham, Donald S. Greig, George S. Halley, Leigh H. Henderson, Robert A. Henry, James A. G. Keddie, Lena E. Low, James R. Miller, John R. Murray, James W. Napier, Margaret C. K. Patterson, James A. Robb, Peter C. Robertson, David Rushton, Blanche D. S. Spence, Jessie R. Watson, James M. Webster, and Margaret P. M. Wilkie.

Pathology.—Monawar Khan Afridi, David S. Anderson, George F. G. Batchelor, Colin R. Baxter, Thomas F. Black, Norman T. Brown, David R. Cameron, Gurbaksh S. Chawla, James Dallas, William F. Dorward, Ellen Douglas, Howard S. Edwards, Howard H. A. Elder, Andrew A. Finnigan, Jessie H. Fitchet, John R. Graham, Donald S Greig, George S. Halley, Jean T. Harris, Alexander Henderson, Leigh H. Henderson, Robert A. Henry, Lillian A. M. Johnston, James A. G. Keddie, Gordon D. Laing, Jeannie P. Laird, Lena E. Low, Francis McLagan, Robert S. Melville, James R. Miller, Hermina M. Morrison, James W. Napier, John E. Overstead, Margaret C. K. Patterson, Peter C. Robertson, David Rushton, Isabella Sim, David B. Soutar, Gertrude J. Sturrock, Ian C. Thomson, Jessie R. Watson, James M. Webster, and Margaret P. M. Wilkie.

FOURTH PROFESSIONAL EXAMINATION FOR DEGREES OF M.B., CH.B.

Medicine.—George G. Buchanan, Katharine M. Campbell, Georgina S. Craig, David W. Dawson, Vyvyan S. Ewing, Phyllis Fleming, Annie A. Fulton, Alexander H. Harkens, L. Jacobs, Isabella D. Kilgour, Nona S. Lesslie, Elizabeth W. MacVicar, Isobel M. Mansie, Ronald S. Paton, John D. Stewart, Christina J. Thomson, Margaret L. Tod, and Margaret H. R. Young.

Surgery.—Georgina S. Craig, David W. Dawson, Vyvyan S. Ewing, Phyllis Fleming, Annie A. Fulton, Alexander H. Harkens, Isabella D. Kilgour, Katharine D. Macfarlane, Elizabeth W. MacVicar, George J. Murray, Ronald S. Paton, John D. Stewart, Christina J. Thomson, and Margaret L. Tod.

Midwifery.—Georgina S. Craig, David W. Dawson, Vyvyan S. Ewing, Annie A. Fulton, Alexander H. Harkens, L. Jacobs, Isabella D. Kilgour, Nona S. Lesslie, Katherine D. Macfarlane, Elizabeth W. MacVicar, Isobel M. Mansi, George J. Murray, Ronald S. Paton, James N. D. Smith, John D. Stewart, Christina J. Thomson, Margaret L. Tod, and Margaret H. R. Young.

UNIVERSITY OF DURHAM: *Faculty of Medicine.*—At the Convocation held on June 28th, the following degrees were conferred:—

Doctor of Medicine.—Joseph W. Craven, M.B., B.S.; Roger Errington, M.B., B.S.; Harold M. Leete, M.B., B.S., B.Hy.; William K. Russell, M.B., B.S.; James C. Spence, M.B., B.S.; and Hans W. Walther, M.B., B.S.

Doctor of Medicine for Practitioners of 15 Years' Standing.—Stanley Bott, M.R.C.S., L.R.C.P.; Harold Chaffer, L.R.C.P. & S., L.F.P.S. Glasg.; and Frederick A. L. Hammond, M.R.C.S., M.R.C.P., D.P.H.

Master of Surgery.—Henry Evers, M.B., B.S., F.R.C.S.; and William Reynolds, M.B., B.S. (in absentia).

Bachelor of Medicine and Bachelor of Surgery.—Samuel E. H. Anderson, Thomas H. Bates, John S. Brodgon, Edward T. Colville, Oliver Colville, John J. N. Daniels, Dorothy A. Dixon, Dorothy E. Elliott, Eskander Girgis, Geoffrey A. Haydock, Roland Hewitson, Reginald A. Hickley, Donald F. Hocken, William E. D. Hodgson, Eustace V. Howard, M.A., Hilda Lodge, Morris Mickler, Lionel Myers, Joan W. Nicoll, Robert J. Perring, Sydney T. Pybus, Mary F. Richardson, and William C. Wardle.

Bachelor of Surgery.—John E. Basham, M.B.

Bachelor of Hygiene.—Charles N. Armstrong, M.B., B.S. Durh.; Edith C. M. Jones, M.B., B.S. Durh.; Melville D. Mackenzie, M.D. Lond.; and Thomas N. V. Potts, M.B., B.S. Durh.

The following received the Diploma in Public Health (D.P.H.):—

Charles N. Armstrong, M.B., B.S. Durh.; Edith C. M. Jones, M.B., B.Sc. Durh.; Francis J. Lidderdale, M.B., B.S. Durh.; Melville D. Mackenzie, M.D. Lond.; Thomas N. V. Potts, M.B., B.S. Durh.; and William O. F. Sinclair, M.B., B.S. Durh.

RESEARCH DEFENCE SOCIETY.—The annual general meeting was held on June 29th, Lord Lamington, the President, in the chair. The President spoke briefly on the work of the Society, after which Lord Knutsford, chairman of committee, moved the adoption of the annual report in which a satisfactory account is given of the work of the past year. The number of articles and letters in the newspapers, and of pamphlets or leaflets distributed, has been large. The quarterly reports of the Society are now sent not only to members, but to the public libraries, and may be bought by anybody for 6d. from Messrs. Macmillan and Co. A number of addresses and lantern lectures have been given. The falling off in the number of debates is not regretted as these are not considered of much educational value. Sir Walter Fletcher, Dr. D. T. Harris, and Miss Burgiss-Brown have become members of committee, of which Mr. Stephen Paget has been appointed vice-chairman on his resignation of the hon. secretaryship. Lady Horsley acted as hon. secretary for some months, and in May Dr. D. T. Harris was appointed hon. secretary. During the past year some new members have been gained, but the total membership is, of course, less than it was in 1914, when it was about 5000. Some have died, some have been unable to keep up their subscriptions, and some have felt that the Society has won all down the line, and that nothing is left to fight for. But the activity of the opponents of medical research still continues, and the Society is the only one organised for the special purpose of meeting it. The chief need of the Society is a larger membership and more money for publishing, for distribution of literature, and for lectures. The subscription is 10s.

After the report had been received and adopted Dr. H. H. Dale, F.R.S. read a paper on the Work of the National Institute for Medical Research, which appears on p. 112 of our present issue. The meeting concluded with a vote of thanks to Dr. Dale, proposed by Sir Leonard Rogers, F.R.S., and seconded by Prof. W. Bayliss, F.R.S. Further information on the work of the Research Defence Society can be obtained on application to the Secretary, 11, Chandos-street, Cavendish-square, London, W. 1.

SOCIETY FOR THE STUDY OF INEBRIETY.—The next meeting of the Society will be held in the rooms of the Medical Society of London, 11, Chandos-street, Cavendish-square, London, W., on Tuesday, July 12th, at 4 P.M., when Dr. W. A. Potts will open a discussion on Alcohol and Alcoholism in Relation to Mental Deficiency. The subscription for the Session 1921-22 was due on April 1st, 1921, and this subscription, together with any yet unpaid for the past session of 1920-21, should be forwarded at once to the Hon. Treasurer. Members and associates, and other friends of the Society, are invited to make a special contribution to the Reserve Fund in order to meet the heavy expenditure now entailed in publishing the official journal, and carrying on the work of the Society. All subscriptions and donations should be forwarded to the Hon. Trasurer, Mr. Arthur Evans, M.S., F.R.C.S., 28, Devonshire-place, London, W.1.

HARVEIAN SOCIETY.—The annual dinner of this Society was held on June 22nd at the Café Royal, Dr. G. de Bec Turtle, the President, in the chair. Sir D'Arcy Power proposed the toast of the Harveian Society and congratulated the members on the fact that throughout the 90 years of its existence it had never been in a more flourishing state than it was to-day. The President responded to this toast, recalling the foundation of the Society by ten medical men in September 1831. The period of its foundation was pregnant with advances in medical science. The practical uses of auscultation were being discovered, and the connexion between dropsy and albuminuria and kidney disease had only recently been established by Richard Bright. Dr. Marshall Hall, who demonstrated reflex action of the spinal cord in 1833, was one of the founders of the Harveian Society. The President spoke of his predecessor Dr. Leonard Guthrie, who had taken the chair in 1913 at the last dinner of the Society, and of the loss sustained by the Society and his medical colleagues in his death. Sir James Dundas-Grant then proposed the toast of kindred societies and guests, to which Sir John Bland-Sutton and Mr. H. Curtis Bennett, K.C., responded.

THE LATE DR. P. E. WALLIS.—Percy Evershed Wallis, who died at East Grinstead on June 26th, had been medical officer of health for the urban district since the year 1889, and in addition held a number of other public appointments in the town and district. Born at Hartfield in 1852, he was educated at Epsom College and King's College, London, and received his medical training at Guy's Hospital. Here he was vice-captain of both the cricket and football teams, and all his life took a deep interest in the summer and winter games. He took the L.R.C.P. Edinburgh and L.M. diplomas in 1877 and became M.R.C.S. England in the same year. At East Grinstead, where the bulk of his professional life was spent, he was regarded as a careful practitioner, and was admired and respected by all for his professional skill, his sound judgment, and his intellectual honesty. He suffered a great blow by the death of his only son, an officer in the Royal Sussex Regiment, in the war, and again by the death of his wife two years ago. He leaves two daughters.

METROPOLITAN HOSPITAL SUNDAY FUND.—The following are among the amounts received at the Mansion House. The total to date is about £50,000:—

	£	s.
Lady Strathcona and Mount Royal	5000	0
Mr. H. G. Tetley, £1,000; Mrs. H. G. Tetley, £500; Children of Mr. and Mrs. H. G. Tetley, £1,000	2500	0
Anonymous	1000	0
Anglo-South American Bank	525	0
Barclays Bank, Ltd.; London County Westminster and Parrs' Bank; National Provincial and Union Bank of England, each	500	0
Watts Watts and Co., Ltd.	315	0
Sir A. Hargreaves Brown, Bt.	300	0
Sir John Latta, Bt.	262	10
Bank of Australasia; Chartered Bank of India each	250	0
Anonymous; Lt.-Col. More-Nisbet; Mr. Alexander Miller, each	200	0
St. Anne's, Wandsworth	183	0
St. Peter's, Cranley Gardens	165	0
St. Giles, Cripplegate	163	0
Union Church, Mill Hill	139	0
Westminster Chapel	144	0
Temple Church	148	0
All Saints, Knightsbridge	128	0
St. Andrew's, Lambeth	121	0
Chapels Royal	117	0
Wanstead Churches	115	0
St. Alphage and St. Mary, Aldermanbury; Hornchurch Parish Church, each	110	0
Whitechapel Primitive Methodist Mission; Moxey Savon and Co.; Mr. H. W. Cullen; Grace Bros. and Co., Ltd.; W. Gardiner and Co., Ltd.; United National Collieries, Ltd.; M. Isaacs and Sons, Ltd.; London and Brazilian Bank; Wilson Sons and Co., Ltd., each	105	0
Anonymous; Ditto; Balfour Williamson and Co.; W. Weddel and Co., Ltd.; Mr. W. D. Graham-Menzies; H.J.S., each	100	0

LLOYD'S HEALTH INSURANCE SOCIETY.—The ninth annual general meeting of this Approved Society was held in the Committee Room at Lloyd's on June 24th. Sir John Luscombe (President) in reviewing the Society's position, said that in looking backward over the ten years' operation of the National Insurance Act it must be admitted that on the whole national health insurance had been a great success. Since the inception of the Act no less than £65,000,000 had been paid in cash benefits; the recent valuation of Approved Societies had shown its financial basis to be sound, and it had been loyally accepted by both employers and employed. There must be an inherent rightness in the principle of this Act, which had stood the strain of nine of the most troubled years of British history. The administration of their own Society continued to be carried on in a very efficient manner; the result disclosed in the valuation report stating the position on Dec. 31st, 1918, was surprisingly good; a surplus of £7451 on the first five years' working was shown.

BRITISH HOSPITALS ASSOCIATION.—At the annual meeting of this Association, held at the Royal Infirmary, Manchester, on July 1st, Sir Arthur Stanley presiding, the principal subject of discussion was the finance of British Voluntary Hospitals, more especially concerning the help which it is hoped to secure out of the surpluses of approved societies. It is difficult to say what proportion of the population are treated in the hospitals every year; the figure was originally put at 2 per cent. but the Association puts it at 5 per cent. If, said the president, the 95 per cent. who do not require hospital treatment were insured, as it were, against it, the hospitals should get a good income. It has been suggested that the approved societies should contribute a guinea a week for each member treated in the hospital, which, however, is far below the cost. It is not likely that the hospitals will get any of the surplus accumulated by the approved societies in the past, which the hospitals had helped to accumulate, but the President suggested that there was no reason why they should not try to get some of the surplus which the societies would amass in the future. Mr. F. J. Hazell, Superintendent of the Royal Infirmary, said that they were willing to take patients at that institution at a guinea a week, which is twice as much as they ordinarily get. Finally, the meeting authorised the Council of the Association to continue its negotiations with the approved societies and to endeavour to induce the societies to contribute a central fund from which grants would be made to the hospitals. The President, who was re-elected, said the Government departments and everyone concerned had put it definitely on record that every effort ought to be made to preserve the voluntary system for hospitals and not to put them on the rates or into the hands of the State.

TREATMENT OF THE INSANE.—Professor George M. Robertson, physician-superintendent of the Royal Edinburgh Asylum at Morningside, at the weekly luncheon of the Edinburgh Rotary Club on June 23rd, said that there were three great impediments to progress in the care of those affected in mind. Desired improvements were limited by financial means; there was a want of initiative and a dearth of ideas. The General Board of Control, which supervised the administration of mental hospitals, had, however, been so successful that it was truly described as having a European reputation. The third impediment was that of the out-of-date and archaic laws under which they were required to work. The strict laws against abuses were, no doubt, necessary when they were introduced, but such precautions were now not only quite unnecessary, but were an actual source of injury to patients. The mental patient suffered from an illness like any other illness, and this required medical treatment, not legal commitment. Owing to legal formality it often happened that a patient could not receive treatment in a mental hospital in the early stages of his illness, and time was lost at a point when there was most hope of effecting a recovery. These antiquated laws operated most harshly on the poor, who could not in practice avail themselves of voluntary treatment, because the Government grant in aid, which in part helped to pay for the maintenance of poor patients in mental hospitals, was not given by the Treasury to the parish unless the patient had actually been certified insane and committed by a Sheriff. Another legal enactment, illogical and absurd as well as hurtful, was that the Lunacy Law of Scotland permitted a patient with mental symptoms to be treated temporarily, without being certified insane, in any place except a mental hospital. The patient might be placed in most unsuitable surroundings, ill-attended by untrained persons, and the fact of his treatment concealed from the knowledge of the officials of the Board of Control—all according to law. It was, however, illegal for the same patient to be placed in a hospital specially designed for the treatment of mental diseases unless he was branded as a lunatic. Two simple alterations would be (1) the enactment of a law giving permission for treatment in a mental hospital of any

patient suffering from a recent attack of mental disorder, for a period not exceeding six months, on simply notifying the Board of the fact; and (2) a clause giving the Government grant in aid to poor patients chargeable on the rates, without the formality of certifying them as lunatics.

INFANT WELFARE CONFERENCE.—The second English-speaking conference on infant welfare promoted by the National Association for the Prevention of Infant Mortality and the National Baby Week Council was opened at the Central Hall, Westminster, on July 5th. Lord Astor presided, and in his opening address emphasised the need for economy in child life as well as in money. Dr. Janet Campbell read a paper on Maternity Homes, in which she explained that the science of midwifery had lagged behind other branches of medicine in recent years and that better conditions were needed for the conduct of cases in labour. At the afternoon session Mrs. Cyril Smithett read a paper on Residential Provision for Mothers and Babies. The Child Welfare Exhibition was opened by Sir Alfred Mond, who dwelt on the advantages to be gained by bringing home to people visually, as in that exhibition, the proper methods of rearing infants.

CHILD WELFARE FÊTE.—An effort is being made to raise money for the promotion of infant and child welfare by a fête to be held on July 16th in the Royal Hospital Gardens, Chelsea. The promoting body is the Central Council for Infant and Child Welfare, which was brought into existence through the efforts of the Joint Council of the Order of St. John and the British Red Cross Society for the purpose of promoting the well-being of children from the ante-natal period up to the age of 16. The Central Council is formed from 13 bodies, which have more or less identical aims, being concerned with mothercraft, the welfare of healthy and sick babies, the care of invalid and crippled children, the provision of day nurseries and convalescent and holiday homes, and the training of volunteers in all branches of the work, and Sir Arthur Stanley is its chairman. Offers of gifts of saleable articles for the fête are solicited and should be sent to Miss Wilson, Secretary of the Central Council for Infant and Child Welfare at 20, Berkeley-street, London, W.

DONATIONS AND BEQUESTS.—During the last six months contributions have been made to the Christie Hospital, Manchester, from the executors of the late Miss Margaret Gerard (£1280) and of the late Miss Margaret Cunliffe (£500) and of the late Mrs. Mount (£30). The late Mr. W. Sutcliffe left a legacy of £200 to this hospital and Dr. J. Howie Smith of Stockport of £100.—The Chelsea Hospital for Women has received from an anonymous friend the sum of £100 to the General Fund and £100 to the Convalescent Home Fund.—The late Captain Roger Grenville Peek bequethed £1000 to the London Hospital.—The late Mr. Charles Wills, J.P., of Bristol, left by will £100 each to the Bristol General Hospital, and the Bristol Royal Infirmary; £50 each to the Medical Mission in Red Cross-street, the Bristol Royal Hospital, and the Blind Asylum, and the Orthopædic Hospital and Home for Crippled Children.

MANCHESTER UNIVERSITY GRADUATION CEREMONIAL.—The Vice-Chancellor on July 2nd conferred nine honorary degrees on distinguished persons. Amongst them were Mr. R. Kidston, distinguished for his investigations on palæobotany, Prof. C. S. Sherrington, P.R.S. and Waynflete Professor of Physiology at Oxford, who received the degree of Doctor of Science, and Prof. Elliot Smith, F.R.S., formerly Professor of Anatomy in the University, the degree of Litt.D. The Vice-Chancellor stated that there were nearly 2900 students on the books (500 in the Faculty of Technology), of whom 600 were women. The appeal fund has now reached £220,000; the efforts to increase it were suspended during the industrial crisis. It was most desirable that monetary local support should be given to the University, as the amount of money assigned to each University from the Government grant by the University Grants Committee will in future be proportioned to the amount of local support which it receives. Thus, if the University appeal for £500,000 had been met by a response of £400,000 by the local community instead of £200,000, the University would have received twice as large an additional grant from the Committee. If, said the Vice-Chancellor, the half million were raised, this plus the increased Government grant would "enable us to pay our staff adequately, to house our students, and meet all the needs for which we sought help. Instead we are being faced with an annual deficit of not less than £5000 in carrying on our present curtailed activities."

Parliamentary Intelligence.

HOUSE OF LORDS.

TUESDAY, JUNE 28TH.

Public Health (Officers) Bill.—Dentists Bill.

THE Public Health Officers (No. 2) Bill was read a second time.

The Dentists Bill was read a third time and passed.

TUESDAY, JULY 5TH.

The Public Health (Officers) (No. 2) Bill passed through Committee without amendment.

HOUSE OF COMMONS.

TUESDAY, JUNE 28TH.

The Blind Population of India.

Mr. GRUNDY asked the Secretary for India the approximate number of blind people in India; whether there was any legislation in force for their treatment and care; and, if not, whether he would make recommendations on this subject to the Government of India.—Mr. MONTAGU replied: At the Census of 1911, there were 175,214 blind males and 173,133 blind females in British India. There is no special legislation applicable solely to blind persons, nor has the need of such legislation become apparent. Dispensaries, stationary and travelling, are available throughout British India, where treatment is given gratuitously to all poor persons; and cataract and other eye operations form one of the largest and most widely appreciated branches of their work. In the United Provinces, for example, 12,326 in-patients were treated during 1919, and 591,229 out-patients, for eye diseases.

Health Safeguards in Slate Quarries and Mines.

Major BREESE asked the Secretary of State for the Home Department if it was intended at an early date to formulate fresh regulations for safeguarding the health and providing against accidents of men employed in the slate quarries and mines of the United Kingdom.—Mr. BRIDGEMAN replied: The revision of the existing regulations has already been taken in hand and will be completed as quickly as possible, having regard to the paramount claims of the work put on the Department by the prolonged stoppage of the coal-pits.

Report of Committee on Pensions.

Mr. PENNEFATHER asked the Minister of Pensions whether the Committee appointed by him some seven months ago had yet reported; if so, whether the report contained recommendations or suggestions in the direction of greater efficiency and economy in administration and greater satisfaction to pensioners; and whether the report would be published and an opportunity of discussing it provided before the House rose.—Major TRYON replied: The report of this Committee is now with the printers; and, as Chairman of the Committee, I hope to submit our recommendations for my right honourable friend's consideration within the next few days.

WEDNESDAY, JUNE 29TH.

Hospitals and the Key Industries Bill.

The House went into Committee on the Safeguarding of Industries Bill, Mr. JAMES HOPE in the chair.

Mr. KILEY moved an amendment to Clause 1 (Charge of Customs Duties on Goods in Schedule), the object of which was to postpone the operation of the Bill until January 1st, 1922.—Dr. MURRAY said while the amendment had been moved entirely from an industrial and commercial point of view, he thought the Government ought to remember that the hospitals of the country had been in dire straits ever since the Armistice. Their laboratories had got out of gear, and there was an almost universal need for new equipment. One of the tragedies of the last three years had been the fact that the hospitals had not only been unable to minister to the number of patients who required their aid, but had been unable to procure the instruments, glassware, and other equipment of that kind which they required in the interests of their patients. The Government had announced that they were going to give £500,000 to the hospitals, but if they did not get time to re-equip their laboratories, and re-stock their instrument departments, nearly the whole of that £500,000 would be used up in extra expense in that direction, so that the Government would be robbing Peter to pay Paul, and this £500,000 would be a sham and a delusion and a snare. This Bill was going to hit our hospitals very hard, and the governors of those institutions should be given sufficient time to replace their equipment. That could not be done in six months. They did not yet know how much of this money they were going to get, and unless they could carry out the

whole thing before January all this money would be practically useless.—Major BARNES said that one could not go up and down the streets of London without seeing at every hospital bills notifying the closing of beds and the reduction in the number of out-patients. At a time when every charitable institution in this country was crying out to the charitably disposed for funds for, perhaps, the most sacred cause to which funds could be devoted—the alleviation of human suffering—the Government were bringing in a Bill to make it more difficult and more expensive to alleviate that suffering. —Mr. A. M. SAMUEL said no human being would do anything to clog the ability of a hospital to be properly equipped, but the hon. Members who had spoken had not given the Committee a single proof that the necessary instruments were not in the shops or warehouses of this country already to be bought if the hospitals needed them.—Col. PENRY WILLIAMS said that only the other day they saw an account in the press of a new scientific instrument which had been acquired by the West London Hospital for the treatment of cancer. It cost £2000. Under this Bill £600 odd would be added to its cost to the people who hoped to benefit by this treatment. Was that the policy of the Government? He believed that had it the money each hospital would acquire one of these new instruments. If they were given the extra six months, and they had £500,000 for the equipment of their hospitals, a large amount of human suffering would be saved.—Mr. BALDWIN (President of the Board of Trade) contended that the community had had ample notice of this Bill. He was quite unable to accept the amendment.

On a division the amendment was negatived by 189 votes to 77.

Deaths from Vaccination.

Mr. WATERSON asked the Minister of Health whether letters of inquiry were still addressed to medical men who certified deaths as due to vaccination; and, if so, how many of such letters had been sent in regard to such certificates during the past ten years.—Sir A. MOND replied: The answer to the first part of the question is in the affirmative; 20 such letters have been sent during the past ten years. It is also the practice in these cases for a medical officer of the Ministry to make personal inquiries into the circumstances.

The Occupational Census.

Mr. ROSE asked the Minister of Health if, in view of the urgent public need of information as to our industrial population and the fact that the full occupational census had usually taken from three to four years to compile in detail, he would take measures to issue as early as possible an approximate or round figure occupational census, showing the rough totals of occupied and unoccupied persons, and the allocation of the occupied population amongst the industries.—Sir ALFRED MOND replied: As no occupational figures for the whole country, however approximate, could in any event be furnished until every individual return has been examined and classified, it does not appear that advantage is to be gained by any departure from the present programme. It is intended to prepare and publish the occupational and certain other census statistics by counties. The earliest issue may be expected in a few months, and the whole will, it is hoped, be completed in two years. The importance of these figures is recognised, and every effort will be made to expedite their issue.

Administration of Dundrum Asylum.

Mr. HAYDAY asked the Chief Secretary to the Lord Lieutenant of Ireland who was responsible for the administration of the Dundrum State Asylum, in view of the fact that the staff worked over 12 hours a day, and that repeated promises made many months ago to improve their general conditions of service had not materialised.—Sir H. GREENWOOD replied: Arrangements have already been agreed to which should enable the hours of work of the staff of this institution to be substantially curtailed. The administration of the asylum is in the hands of the governor, subject to the usual administrative and financial control.

Army Statistics.

Major BROWN asked the Secretary for War what were the total numbers, all ranks, of the Army Service Corps, Royal Army Medical Corps, Royal Army Ordnance Corps, Royal Army Veterinary Corps, Royal Army Pay Corps, Corps of Military Accountants, Army Educational Corps, and Army Dental Corps in the year 1913–14; and what was their estimated total for the year 1921-22.—Sir L. WORTHINGTON EVANS replied: Excluding the Army in India, the total numbers in the corps mentioned in 1913-14 were 14,600, and the estimated total for 1921-22 is approximately 30,500.

New Hospital Commission.

Mr. LEONARD LYLE asked the Prime Minister what steps, apart from the grant of money towards voluntary hospitals, he proposed to take to give effect to the recommendations of Lord Cave's Committee dealing with the improvement of the financial position of these institutions.—Sir A. MOND (Minister of Health) replied: I am now taking steps to appoint a Hospital Commission which will be responsible for the establishment of Local Voluntary Hospital Committees for the distribution of the State grant and for assisting in raising fresh revenue and in combining and co-ordinating the activities of the hospitals generally on the lines recommended by Lord Cave's Committee. The other recommendations of that Committee, some of which would require legislation, are still under consideration.—Mr. LYLE: In view of the fact that the Finance Bill is passing through the House at the present time, may I ask if the Government will consider the report of the Cave Committee, which recommended that the contributions of employers should be exempt for the purposes of income tax.—Sir A. MOND: Yes, that point will certainly be considered.—Mr. DEVLIN: Will there be a representative on this Commission from Ireland?—Sir A. MOND: No, Sir.

Voluntary Hospitals in Ireland.

Sir MAURICE DOCKRELL asked the Minister of Health if he was aware that Ireland made a very large contribution to the medical and nursing staff of the nation during the war, and that the skill of those serving was to a large extent acquired in the voluntary hospitals of Ireland; if he would explain why Ireland was excluded from the reference to the committee appointed by the late Minister of Health, and was in consequence excluded from the grant of £500,000 about to be made to the voluntary hospitals of the United Kingdom other than those of Ireland; and if Ireland would be granted a sum at least proportioned to her taxation as part of the United Kingdom.—Sir A. MOND replied: I gladly acknowledge the value of the work of the voluntary hospitals of Ireland. I understand that Ireland was excluded from the purview of Lord Cave's Committee as it was thought that the Irish Parliaments might be left free to provide, as they may think fit, for the needs of Irish hospitals. The last part of the question should be addressed to my right hon. friend the Chief Secretary to the Lord Lieutenant.—Sir M. DOCKRELL: Is the right hon. gentleman aware that in Clause 1 of the report of the Cave Committee they evidently contemplate the inclusion of Ireland in the reference and that in Clause 56 they base the recommendation for a grant from the Government upon the fact that the voluntary hospitals of this country did very fine work in treating wounded soldiers? Further, is the right hon. gentleman aware that there was no country which did more in proportion to its resources in this respect than Ireland for wounded soldiers, and will he take steps to prevent gross injustice to Ireland, which will occur if Irish hospitals are excluded from participating in this grant; will the right hon. gentleman kindly give favourable consideration to this matter which involves a great hardship?—Sir A. MOND: As I pointed out in my previous answer, Ireland was not included in the purview of Lord Cave's Committee or in the reference and therefore the grant which I am going to ask the House to give cannot be affected by any question regarding Ireland. Ireland is not within the purview of my department and any further questions on the subject should be addressed to the Chief Secretary for Ireland.—Sir M. DOCKRELL: If Ireland had been included in the reference would the right hon. gentleman feel it his duty to recommend a grant to Ireland?—Mr. DEVLIN: May I ask whether as Ireland pays its proportion to the taxation of the country and as this is a grant to relieve hospitals out of taxation Ireland is not entitled to an equivalent grant for the purpose for which the general sum is intended?—The SPEAKER: The hon. Member should put that question to another Minister.—Mr. DEVLIN: May I then ask the right hon. gentleman whether he will not confer with the Chief Secretary for Ireland and see if the Irish Government cannot do something on behalf of those who are ill in Irish hospitals instead of merely driving more people into these hospitals?—Sir A. MOND: I am not responsible for the health of Ireland and to confer with the Chief Secretary on a matter of Irish business is not within the scope of my duties.

THURSDAY, JUNE 30TH.

Indian Medical Officer's Leave.

Brigadier-General COLVIN asked the Secretary for India whether he was aware that many officers of the Royal Indian Medical Service had had no English leave for many years, and whether having regard to the debilitating climate of India, he would take steps which would enable officers of this Service to have leave at regular periods.—Mr. MONTAGU replied: I regret that owing to the conditions created by the war it has not been possible to grant leave to the Indian Medical Service to the extent desirable. Every effort is being made to bring the Service up to full strength and so make it possible to grant leave more freely. As the hon. and gallant Member is doubtless aware, the terms of service have been immensely improved, with the object of attracting a larger number of candidates of the best type. But the falling-off in the out-turn of the medical schools during the war makes this a slow process. In the meantime

all the Government of India can do is to restrict the amount of leave that may be taken by an officer at one time so that as many officers as possible may come home.

Medical Examinations for the Civil Service.

Sir HERBERT NIELD asked the Secretary to the Treasury whether he was aware that ex-Service men whohave passed the qualifying educational standard for the Civil Service were required to pay a fee of 15*s.* before they could be medically examined; whether, having regard to the fact that most of these men had been employed temporarily in Government departments at a salary of £3 15*s.* per week, out of which they had had to pay fees for entering the examination as well as for attending classes, this medical examination fee could be debited to the National Health Insurance Commissioners, seeing that many of these men had never received any pecuniary benefit under the National Health Insurance Act or failing this that only those who had passed the medical examination be asked to refund the money at a later date.—Mr. HILTON YOUNG replied: The fee for medical examination demanded in the cases of candidates for all but the highest appointments in the Civil Service has, after negotiations with the British Medical Association, been fixed at 15*s.*, and I am satisfied that this sum is a reasonable charge for the detailed report required. I am not prepared to impose a charge upon the Exchequer in respect of this fee, for which Health Insurance Funds could in no case be made liable.

Insurance Contributions of Miners.

Mr. ALLEN PARKINSON asked the Minister of Health if any provision had been made to allow for the non-payment of contributions to the National Health Insurance by the miners who had been locked out; if not, was it intended that the workers in the coal industry who had missed 13 weeks' contributions in the present half-year should be mulcted in an arrears fine of 3*s.* to bring them into full benefit; or would he issue instructions that members were not to be penalised by fine or reduced benefits on account of their contributions not being paid during this period of unemployment.—Sir A. MOND replied: An insured person who has missed 13 contributions in the contribution year ended July 3rd next can, in accordance with the Regulations, avoid any reduction in benefit during the next benefit year by the payment of 3*s.* (if desired in instalments of 1*s.*) before the end of next November. In view of the easy conditions of payment and the prospect of regular employment in the mining industry during the intervening months it is not proposed to make any special provision as suggested by the hon. Member.

London Pension Appeal Tribunals.

Lieut.-Colonel Sir FREDERICK HALL asked the Minister of Pensions whether any and, if so, how many additional appeal tribunals had been set up in the London region since Feb. 28th last; what was now the average number of appeals being heard each week; and what was the usual period which at present elapsed between the date on which an appeal was received by the tribunal and the date on which it was listed for hearing.—Major BARNSTON (Controller of the Household) replied: There are at present eight Pension Appeal Tribunals sitting in London dealing with approximately 400 cases each week. The average period elapsing between the date a London area appeal is received by the tribunal and the date on which it is listed for hearing is about seven weeks. The number of waiting appeals in this area has been considerably reduced since March last.—Sir F. HALL: Cannot steps be taken to set up additional tribunals in order that this work can be expedited?—Major BARNSTON: I will communicate that suggestion to my hon. and learned friend.

Voluntary Hospitals in Ireland.

Sir M. DOCKRELL asked the Chief Secretary for Ireland if he was aware that Ireland made a very large contribution to the medical and nursing staff of the nation during the war, and that the skill of those serving was to a large extent acquired in the voluntary hospitals of Ireland; if he would explain why Ireland was excluded from the reference of the Committee appointed by the late Minister of Health, and was, in consequence, excluded from the grant of £500,000 about to be made to voluntary hospitals of the United Kingdom other than those of Ireland; and if Ireland would be granted a sum at least proportioned to her taxation as part of the United Kingdom.—Sir H. GREENWOOD replied: I am aware that Ireland made a large contribution to the medical and nursing staff of the nation during the war. The British Government already makes an annual grant of over £16,000 to Irish hospitals. Under present conditions the Government does not see its way clear to ask the House to increase that grant. Lord Cave's Committee did not consider the condition of Irish hospitals on the ground that under the Government of Ireland Act hospitals in Ireland come under the provisions of the two Parliaments.—Sir M. DOCKRELL: Is it a case of "live horse and you will get grass"? I am sure we have the right hon. gentleman's sympathy, and we ask for its exercise in favour of our hospitals.—Colonel Sir J. GREIG: Are there equivalent grants in England or Scotland to hospitals from public funds?—Sir H. GREENWOOD: I think equivalent grants are not made to hospitals in England or Scotland but exclusively to Ireland. As the hon. gentleman says, I am fully sympathetic, but I regret that from the point of view of Ireland that the people of this country have taken the view, and, indeed, it is the view under the Government of Ireland Act, that matters that come under the two Parliaments of Ireland can no longer be treated by this House especially in face of the financial grants.—Sir. M. DOCKRELL: Is there to be no contribution until the Irish Parliaments function concurrently? If so we may have to wait indefinitely.—Mr. DEVLIN: Is it not the fact that one of these Parliaments has postponed its deliberations till September and that the other does not propose to meet at all; and in the meantime while the hospitals are suffering and are in debt because of these political events, are they to be denied the advantages of this grant from the public exchequer to which Ireland pays its fair share? Answer that with all your sympathy.—No further answer was given.

FRIDAY, JULY 1ST.

The Washington Conventions.

Dr. MACNAMARA (Minister of Labour) moved: "That this House approves the policy of His Majesty's Government respecting the several conventions and recommendations of the International Labour Conference at Washington in November 1919." Speaking of the Maternity Convention (which along with that dealing with the 8-hour day the Government have refused to ratify) the right hon. gentleman said that it was proposed to provide for the six weeks preceding and the six weeks following confinement, and these proposals related only to employed women. Now in this country we had developed over a period of years a system for dealing with this question which was on entirely different lines and which provided not only for employed women but for the wives of employed contributors to the National Health Insurance Scheme—a very much larger number. Our system was animated by the same spirit as this particular Washington Convention, but the Washington Convention if adopted would cut right across the arrangements which during a series of years had been made and built up in this country—and were in advance of those in any other country in the world—under the National Insurance Act and in connexion with maternity and child welfare centres throughout the country. Were they going to scrap their existing machinery built up with a remarkable measure of success as a result of years of effort in order to start again from the beginning on entirely new lines? After full consideration the Government decided that such a change would be unjustifiable.

Mr. G. BARNES appealed to the Government to revive confidence in the Labour Organisation of the League of Nations and to revive confidence in themselves as having signed the Labour Chapter of the Peace Treaty.—Mr. CLYNES, speaking for the Labour Party, said that the two questions that still mattered to them were the questions of hours and of maternity conditions. They were asking that women who had to work for their living and enter into employment should be assured of the fullest care and rest many weeks before and after confinement. The nation could not afford to allow women and children to suffer for the sake of a saving of, may be, £2,000,000 a year.—Viscountess ASTOR urged that the Government should call a conference of women experts to see if any way could be found to deal with this question of maternity.—Mr. A. CHAMBERLAIN (Lord Privy Seal), supporting the motion, said this country had really been in the forefront of industrial legislation for the protection of the health of our industrial community. The accomplishment, however, of all their hopes and ideals was not possible so long as some of the greatest nations of the world, and especially some of the greatest industrial nations, took no part in these conferences, were no parties to their decisions, and did not act with us in the general endeavour. In super-legislation of this type the proposals must be made elastic if they were to be successful. He had made inquiries and he was informed that there was nothing comparable to the maternity benefit given in this country in any country in Europe, or, indeed, anywhere with the possible exception of one of our Dominions. If other countries could be persuaded to come up to our standard we would go forward in an endeavour to secure agreement with those countries for still further progress. But it was no use ratifying conventions with one exception in one country, another exception in another country, and a clause in a third which enabled them to accept anything. That way there would be no progress, but a hollow appearance of assent which covered an infinite difference of opinion.

On a division the motion was carried by 164 votes to 53.

Dentists Bill.

On the motion of Sir A. MOND the Lords amendments to the Dentists Bill were agreed to, and the House also agreed to introduce words to prevent the director of a dental company who is not a registered dentist calling himself a registered dentist as far as the company is concerned, while carrying on as a registered dentist during the amalgamation or reconstruction of the company.

MONDAY, JULY 4TH.

Overcrowding in Middlesbrough.

Mr. TREVELYAN THOMSON asked the Minister of Health whether he was aware that considerable sickness and ill-health was being caused in the county borough of Middlesbrough owing to the large amount of overcrowding which existed on account of the shortage of houses, estimated by the local authority as over 2000 houses; and would he therefore reconsider his decision not to sanction the immediate provision of a further 300 houses desired by the local authority.—Sir ALFRED MOND replied: My department has no information confirming the allegation made by the hon. Member. With regard to the latter part of the question, I am afraid I cannot add anything to the reply which I gave to the hon. Member to his question on Wednesday last.

Women in Ministry of Health.

Mr. SWAN asked the Minister of Health how many women in his department or in departments now comprised in the Ministry were receiving a salary of £500 a year in June, 1914; and how many were receiving such a salary now.—Sir ALFRED MOND replied: The number of women employed in 1914 in the departments now comprised in the Ministry of Health who were receiving a salary of £500 a year or over was three. The corresponding number for 1921 is seven.

Pension Appeal Delays.

Lieut.-Colonel HURST asked the Minister of Pensions whether he was aware that the appeal of C. A. Blake, late Royal Engineers, of 2, Priory-street, Greenheys, Manchester, (B/D 41, 359) submitted on Dec. 22nd, 1920, was still unheard; whether he would expedite the hearing; whether he was aware of the excessive delay in the hearing of appeals by the appeals tribunals and the hardships thereby caused to appellants; and whether he would take steps to mitigate such hardships by increasing the number of tribunals and by enabling local committees to give grants in aid pending final decisions.—Major TRYON replied: I am informed by the tribunal authorities that this case will be heard during the present week, and that two additional tribunals have recently been set up to deal with appeals arising in the area of the north-western region. With regard to the last part of the question, I would refer my hon. and gallant friend to the answer given to the hon. and gallant Member for Royton on April 21st, of which I am sending him a copy.

Pension Statistics.

Sir WALTER DE FRECE asked the Minister of Pensions the number of applications for pensions which had been rejected; the number of pensions which had been terminated; the number of pensions which had been reduced; and the number of applications for pensions received within the last six months.—Major TRYON replied: During the last six months 59,000 first applications for pensions were made by officers and men, of which 40,700 were accepted and 18,300 were rejected. During the same period 512,500 pensioners were re-examined by medical boards, with the result that in 264,000 cases the pension was continued at the same rate, in 45,500 cases it was increased, in 149,000 it was reduced, and in 54,500 cases the pension was not renewed.

Small-pox and Vaccination.

Mr. ROBERT YOUNG asked the Secretary for Scotland whether any of the infants under five years of age who died of small-pox during the Glasgow outbreak in 1920 had at any time been vaccinated before dying of small-pox.—Mr. MUNRO replied: No child under five years of age who died of small-pox in Glasgow during the outbreak in 1920-21 had been vaccinated at any time.

TUESDAY, JULY 5TH.

National Health Insurance Bill.

On the motion for the third reading of the National Health Insurance Bill,

Sir GODFREY COLLINS said that according to the report presented to the House by the Minister of Health the total number of insured persons was 12,190,000. The intention of the Bill was to set aside a sum of 4*s.* 10*d.* per insured person per annum—a total sum of £2,750,000—for the expenses of administration of Approved Societies. In addition a further sum of 6*d.* was to be set aside for the administration expenses of the insurance committees, amounting in all to £717,000, making a total of over £3,000,000 absorbed in administration of the Act of 1911. There was also a sum of nearly £600,000 which was included in the Ministry of Health estimates to be spent in administration, so that nearly £4,000,000 was to be disbursed on administration. He thought that these sums were excessive but he did not suggest that they were unnecessary in the present administration. No one questioned the valuable work being done by Approved Societies and insurance committees throughout the country, but in the interests of insured persons he urged that before these sums were granted the Minister should take steps to curtail the enormous expenditure on the administration of the Act. It had been estimated in a report which had been presented to Parliament that for every £3 paid out in benefit £1 was required for administration expenses. He asked if the time had not come when the whole working of the Act should not be inquired into with a view to its simplification and the reduction of the number of officials employed, so that a large proportion of the contributions might be available for increased benefits.

After some discussion, Sir A. MOND (Minister of Health) said that the Committee which inquired into the cost of the administration of the National Health Insurance Act came to the conclusion that the additional charge of 5*d.* per head of the insured persons would be a reasonable amount for administration expenses. It would be terrible if it were true, as had been suggested by Sir Godfrey Collins, that for every £3 paid out in benefits £1 was spent in expenses of management. The fact was that those expenses only represented 12½ per cent. of the premiums received. The work of the Insurance Commission and the Approved Societies had been very carefully and conscientiously carried out and the valuations which were now being made were coming out extremely well in almost all districts. He was not sure, however, that the time had not arrived when a searching inquiry into the whole subject by a responsible body might not take place with advantage and he would consider whether such a body should not be set up.

The Bill was read a third time.

Appointments.

BRUCE, J., M.B., C.M. Glasg., D.P.H., has been appointed Medical Officer to the Post Offices of Paisley, Bishopton, and Linwood.

CROOKSHANK, F. G., M.D., F.R.C.P. Lond., Physician to In-patients, the Prince of Wales's General Hospital, N., and the French Hospital, W.C.

WORSTER-DROUGHT, C., M.D. Camb., M.R.C.P. Lond., Assistant Physician to the West End Hospital for Diseases of the Nervous System.

YOW, C. W., M.B. Edin., Senior House Surgeon and Registrar to the Royal Eye Hospital, Southwark.

Manchester Royal Infirmary: HISLOP, G., M.B., B.S., WILLIAMSON, R., M.B., Ch.B. Vict., and FORD, W. J., M.B. Syd., House Physicians; HARLEY, H. W., M.B., B.S. Melb., House Surgeon.

Certifying Surgeons under the Factory and Workshop Acts: FORT, H. M., M.B., Ch.B. Manch. (Oldham West); LOW, J., M.B., Ch.B. Aberd. (Oldham East).

Vacancies.

For further information refer to the advertisement columns.

Ashton-under-Lyne District Infirmary.—Res. Surg. O. £250.
Ayr District Asylum.—Male Asst. P. £400.
Barnsley, Beckett Hospital.—Sen. H.S. £300.
Battersea Borough Council.—Asst. M.O. £550.
Bedford County Hospital.—H.S. £200. Asst. H.S. £150.
Birkenhead Borough Hospital.—Sen. H.S. £250.
Birmingham Education Committee.—Asst. Sch. M.O. £500.
Birmingham General Hospital.—Res. S.O. £180.
Birmingham Queen's Hospital.—Surg. Registrar. £100. Also Obstet. and Oph. H.S. £90.
Bolton Infirmary and Dispensary.—Female Third H.S. £170.
Bootle Borough Hospital, Derby-road.—Hon. S. for Diseases of Throat, Nose, and Ear.
Brighouse Education Committee.—Oculist. £2 2*s.* per session.
Bristol Royal Hospital for Sick Children and Women.—Hon. S. to Out-patient Department.
British Honduras.—Asst. M.O. $2130.
Bromley Education Committee.—School Dentist. £250.
Brompton Hospital for Consumption and Diseases of the Chest, S.W.—H.P. £50.
Cancer Hospital, Fulham-road, S.W.—H.S. £150.
Cape Hospital Board.—Three Res. Med. O.'s £30 per month.
Carlisle Non-Provident Dispensary.—Res. M.O. £300.
Croydon General Hospital.—Second H.S. £150.
Cumberland Infirmary, Carlisle.—Res. M.O. £180.
Derby, Derbyshire Royal Infirmary.—H.S., H.P. Each £200.
Edinburgh Education Authority.—Asst. M.O's. £500.
Enfield Education Committee.—Sch. M.O. £500.
Holborn and Finsbury Hospital, Archway Road, N.—Second Asst. M.O. £300.
Hull Royal Infirmary.—Asst. H.S. £150.
Leeds Public Dispensary.—Sen. Res. M.O. £200.
Leeds University (Leeds Maternity Hospital).—Tutor in Obstetrics and Res. M.O. £300.

Leicester Royal Infirmary.—H.S. £200.
Liverpool, Royal Liverpool Children's Hospital.—Res. H.S. £90.
Llanelly, Borough of.—Female Asst. M.O.H. and Asst. Sch M.O. £500.
London Temperance Hospital, Hampstead-road, N.W.—Surg. Registrar. 40 guineas. Res. M.O. £200.
Manchester Ancoats Hospital.—H.S. £150.
Metropolitan Borough of Islington.—M.O.H. £1100.
Middlesex Hospital, W.—Cas. M.O. £104.
Miller General Hospital for South-East London.—H.S. £150.
National Hospital for Diseases of the Heart, Westmoreland-street, W.—Pathologist. £250.
Newcastle-upon-Tyne, University of Durham College of Medicine.—Demonstrator of Anatomy. £350.
Newport (Mon.) Royal Gwent Hospital.—H.S. £200.
Nottingham General Hospital.—Res. Cas.O. £250. Also H.S. £200.
Oxford, Radcliffe Infirmary and County Hospital.—Res. Accoucheur. £200. Cas. H.S. £200.
Queen Charlotte's Lying-in Hospital, Marylebone-road, N.W.—Asst. Res. M.O. £60. District Res. M.O. £80.
Reading, Royal Berkshire Hospital.—H.S. £200.
Royal Naval Medical Service.—Surg.-Lieuts. 26s. 6d. per diem.
St. Mark's Hospital for Cancer, Fistula, &c., City-road, E.C.—H.S. £250.
Salford Royal Hospital.—H.S. £150. Cas. H.S. £150.
Salisbury General Infirmary.—Asst. H.S. £150.
Sheffield University.—Demonstrator in Department of Pathology and Bacteriology.
Southampton, Royal South Hants and Southampton Hospital.—Jun. H.S. £150.
South-Eastern Counties of Scotland Joint Sanatorium Board.—Med. Supt. £600.
South London Hospital for Women, Clapham Common, S.W.—H.P. £100. H.S. £100.
St. Mary's Hospital for Women and Children, Plaistow, E.—Res. M.O. £200.
Wesleyan Missionary Society Women's Auxiliary.—Three Women Doctors.
West London Hospital, Hammersmith-road, W.—P.
Wigan Infirmary.—Jun. H.S. £200.

The Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Pitlochry, at Milngavie, and at Middleton-in-Teesdale (Durham).

Births, Marriages, and Deaths.

BIRTHS.

HENDRY.—On June 26th, at Elphinstone-road, Southsea, the wife of Major A. Hendry, R.A.M.C., of a son.

LANGRISHE.—On July 2nd, at Murdocks House, Ware, the wife of Major John du Pré Langrishe, R.A.M.C., D.S.O., of a daughter.

LEE.—On July 4th, at Gloucester-walk, Kensington, the wife of Robert H. Lee, M.D., of a daughter.

MURPHY.—On June 24th, at Linthorpe, Middlesbrough, the wife of Dr. R. W. Murphy, O.B.E., of a daughter.

SMALLMAN.—On the 30th June, at Eastbrook, Park Hill-road, Croydon, the wife of Lieut.-Colonel A. B. Smallman, C.B.E., D.S.O., M.D., of a son.

WARBURTON.—On July 1st, at Campden House Court, Kensington, the wife of P. D. Warburton, M.R.C.S., of a daughter.

YEOMAN.—On June 28th, at 10, Duchy-road, Harrogate, to Dr. and Mrs. W. Yeoman—a daughter.

MARRIAGES.

CHARLESWORTH—BENNETT.—On June 28th, at St. Mary's Parish Church, Barnes, Henry Charlesworth, C.M.G., Brevet-Colonel, late R.A.M.C., to Constance Katherine, daughter of the late Mr. and Mrs. George Bennett, formerly of Holland Park, and Barnes.

FRY—MIALL-SMITH.—On July 1st, at the Ethical Church, Bayswater, Hubert John Burgess Fry, B.A., M.D., B.Ch., B.Sc., M.R.C.S., L.R.C.P., D.P.H., to Gladys Miall-Smith, B.Sc., M.B., B.S., M.R.C.S., L.R.C.P., D.P.H.

MALDEN—DURANT.—On June 29th, at St. Andrew's Church, Clewer, Windsor, Edmund Claud Malden, M.A., M.R.C.S., L.R.C.P., to Margaret Dorothy, only daughter of Mr. and Mrs. Durant, of Clewer Court, Windsor.

PIGGOTT—PORTER.—On June 21st, at St. Stephen's, Winchmore-hill, F. Stanley L. Piggott, M.R.C.S., to Leslie, second daughter of Mr. S. J. Porter, of Woodside, Winchmore-hill.

SHORE—MCCALLUM.—On June 29th, at St. Margaret's Church, Putney Park-lane, Lewis Rudall Shore, M.C., M.A., M.B., Captain, R.A.M.C., to Christina, younger daughter of the late R. A. McCallum, of Putney, and Mrs. McCallum, of Thrale Hall, Streatham.

TENNENT—SHEARER.—On June 29th, at Strathaven, Robert Tennent, F.R.C.S.E., Park-grove-terrace, Glasgow, W., to Helen Fleming, only daughter of John P. Shearer.

DEATHS.

DODD.—On June 28th, at Harley-street, W., Henry Work Dodd, F.R.C.S., in his 62nd year.

INDEX TO "THE LANCET," VOL. I., 1921.

THE Index and Title-page to Vol. I., 1921, which was completed with the issue of June 25th will shortly be published in THE LANCET.

Medical Diary.

SOCIETIES.

SOCIETY FOR THE STUDY OF INEBRIETY, at the Rooms of the Medical Society of London, 11, Chandos-street, Cavendish-square, W.
TUESDAY, July 12th.—3.30 P.M., Council Meeting. 4 P.M., Discussion on Alcohol and Alcoholism in Relation to Mental Deficiency, opened by Dr. W. A. Potts.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.
MONDAY, July 11th.—12.15 P.M., Dr. Burnford: Pathological Demonstration. 2 P.M., Mr. D. Armour: Operations. 2.30 P.M., Dr. A. Saunders: Visit to Medical Wards. 5 P.M., Lecture:—Mr. D. Buxton: Irregularities of the Teeth.
TUESDAY, 10 A.M., Surgical Registrar: Demonstration of Cases. (Surgical Wards.) 12 noon, Mr. T. Gray: Demonstration of Fractures. 2.30 P.M., Mr. Addison: Demonstration of Cases. (Surgical Wards.) 5 P.M., Lecture:—Mr. Addison: Inflammation and Tumours of the Breast.
WEDNESDAY, 12 noon, Mr. Sinclair: Surgical Diseases of the Abdomen. 2 P.M., Mr. D. Armour: Visit to Surgical Wards. 2 P.M., Mr. Addison: Operations. 5 P.M., Lecture:—Dr. Pritchard: Forms of Arthritis and their Treatment.
THURSDAY, 10.30 A.M., Dr. Simson: Gynæcological Demonstration. 5 P.M., Special Lecture:—Mr. P. Dunn: Some Points in Relation to Tobacco Amblyopia. (Open to all Medical Practitioners.)
FRIDAY, 10 A.M., Dr. G. Stewart: Neurological Demonstration. 12.15 P.M., Dr. Burnford: Applied Pathology. 2.30 P.M., Mr. Baldwin: Operations. 5 P.M., Lecture:—Dr. Pritchard: Meningitis.
SATURDAY, 10 A.M., Medical Registrar: Demonstration of Cases. (Medical Wards.)
Daily, 10 A.M., Visit of Post-Graduates to Wards. 2 P.M., In-patient Clinics and Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.
MONDAY, July 11th.—10 A.M., Mr. W. E. Tanner: Surgical Out-patients. 2 P.M., Dr. A. J. Whiting: Medical In-patients. 2.30 P.M., Mr. J. B. Banister: Gynæcological.
TUESDAY.—9.45 A.M., Lt.-Col. R. H. Elliot: Eye Operations and Cases. 2.30 P.M., Dr. J. Metcalfe: X Ray Department. 3 P.M., Lecture Demonstration:—Mr. C. H. Hayton: Anatomy of Ear. Methods of Examination.
WEDNESDAY.—2 P.M., Mr. C. H. Hayton: Throat Operations. 2.30 P.M., Dr. W. J. Oliver: Dermatological. 3 P.M., Lecture Demonstration:—Mr. W. E. Tanner: Specimens illustrating Acute Abdominal Emergencies
THURSDAY.—2 P.M., Mr. N. Fleming: Eye Department. 2.30 P.M., Mr. J. B. Banister: Gynæcological Operations. Dr. J. Metcalfe: Radiology.
FRIDAY.—2 P.M., Dr. C. E. Sundell: Diseases of Children. 4.30 P.M., Lecture Demonstration:—Dr. C. E. Sundell: Bottle Feeding. 5 P.M., Dr. Provis and Mr. Benians: Venereal Department.
SATURDAY.—10.30 A.M., Mr. W. E. Tanner: Operations. 3 P.M., Mr. H. W. Carson: Surgical In-patients.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART, Post-Graduate Course, Westmoreland-street, Marylebone, W.
MONDAY, July 11th.—11.15 A.M., Demonstration (Laboratory and Clinical): Dr. B. T. Parsons-Smith. 2 P.M., Ward Demonstration: Dr. R. O. Moon. 5 P.M., Lecture:—Dr. B. T. Parsons-Smith: Anatomy and Development of the Heart.
TUESDAY.—11.15 A.M., Demonstration (Laboratory and Clinical): Dr. J. S. Goodall. 2 P.M., Ward Demonstration: Dr. J. Parkinson. 5 P.M., Lecture:—Sir Sydney Russell-Wells: Diseases of the Aortic Valve.
WEDNESDAY.—11.15 A.M., Demonstration (Laboratory and Clinical): Dr. J. S. Goodall. 5 P.M., Lecture:—Dr. F. W. Price: Diseases of the Mitral Valve.
THURSDAY.—11.15 A.M., Demonstration (Laboratory and Clinical): Dr. R. O. Moon. 2 P.M., Ward Demonstration: Dr. J. S. Goodall. 5 P.M., Lecture:—Dr. J. S. Goodall: X Ray in Diagnosis of Cardio-vascular Lesions.
FRIDAY.—11.15 A.M., Demonstration (Laboratory and Clinical): Dr. J. S. Goodall. 2 P.M., Ward Demonstration: Dr. F. W. Price. 5 P.M., Lecture:—Dr. R. O. Moon: Heart Disease in Children.
SATURDAY.—10.30 A.M., Ward Demonstration: Dr. P. Hamill.
Daily (except Saturday):—10 A.M., Sir Sydney Russell-Wells and Dr. J. Parkinson: Instruction in Instrumental Methods of Examination, Blood Pressure, Polygraph, Electrocardiograph, and X Ray. 2 P.M., Out-patients. Practical Clinical Demonstrations in the Out-patient Department.

ST. MARYLEBONE GENERAL DISPENSARY, 77, Welbeck-street, Cavendish-square, W.
Post-Graduate Course on Infant and Child Welfare.
A Course of Twelve Practical Demonstrations on the Management and Feeding of Infants and Young Children by Dr. E. Pritchard to Qualified Practitioners.
TUESDAY, July 12th.—10.30 A.M., Demonstration IX., The Tuberculous Mother and her Child.
THURSDAY.—3 P.M., Demonstration X., The Syphilitic Mother and her Child.

Notes, Short Comments, and Answers to Correspondents.

THE WORK OF THE NATIONAL INSTITUTE FOR MEDICAL RESEARCH.[1]

BY DR. H. H. DALE, F.R.S.

I HAVE been asked to speak upon the National Institute for Medical Research, which comprises the Central Research Laboratories under the Medical Research Council. I may remind you that the Medical Research Fund, which the Council administer, was originally established by the National Health Insurance Act, the sum of money annually available being assessed by the number of insured persons. It represented, indeed, a recognition of the fact, long familiar to anyone with knowledge of the position, that treatment directed to the cure or alleviation of existing disease touched only the fringe of the problem; that a relatively small sum spent on facilitating the discovery of causes, and therewith of methods of prevention or of radical treatment, would ultimately save more suffering and do more for national health, than vast sums spent on the application of such remedies as woefully deficient knowledge had yet been able to indicate. The Committee appointed to administer the fund decided that, while the major part should be employed for supporting and promoting medical research in existing institutions—hospital and university laboratories—a substantial sum should be devoted to the formation of a new central institute, staffed by workers who should be in the Committee's whole-time service, and free to receive, from time to time, attached workers from other institutions, whose research could be assisted by the facilities and the opportunities for help and collaboration which such a permanently organised institute could offer.

The History of the Institute.

The first members of the staff of the Institute were appointed in the middle of 1914, and the Committee had used a favourable opportunity to purchase a fine building and grounds at Hampstead, which, after many years' good service as the Mount Vernon Hospital for the treatment of consumption, had been abandoned in favour of more modern premises further from the centre of London. Then came August, 1914, and the whole of the Committee's resources and staff were, for five years, diverted to dealing with the pressing problems created by the absorption of the whole energies of the nation in the successful prosecution of the war. The Hampstead building was immediately handed over to the War Office, and was used as a military hospital by different branches of the services down to the early months of 1919. When at length it was no longer needed in this direction, the task of preparing it for the accommodation of the research staff was taken up again, and by April, 1920, was so far advanced that the members of the staff could take up their work there, and bring into actual being that close coöperation between the different branches of medical research which the Committee had in view in appointing the staff and planning the Institute. Meanwhile, with the absorption of the Health Insurance Commissions into the Ministry of Health, the Medical Research Committee, as a committee under the Insurance scheme, had passed out of existence, but the task which, during the war, they had discharged with such general approbation, was taken up by the newly-constituted Medical Research Council, administering a Treasury grant, and responsible to a Committee of the Privy Council.

The Work in Progress.—Bacteriological Media.

It will be clear, from what I have said that the National Institute for Medical Research at Mount Vernon has only been in existence as a working research institute for a little over a year. The building has been adapted with remarkable ease, and with very little real structural alteration, to provide spacious, airy, and well-lit laboratories. At the same time, in a first year of working in such newly-adapted quarters, a good deal of time has necessarily been spent in plans and preparations. It can cause no surprise, therefore, if I speak more of our organisation, our plans, and our hopes, than of finished achievements. The staff, as originally appointed, and still constituted, is organised in four main departments, each with its independent director—the departments of bacteriology and experimental pathology, of applied physiology and hygiene, of biochemistry and pharmacology, and of medical statistics.

When the new Institute was ready to receive the workers in its constituent departments many of them were still engaged in problems arising out of their work during the war. This must be an experience common to many experimental laboratories. Under the stress of war conditions detailed investigation along established lines was largely thrown aside. New methods and new aims were forced upon us. Peace brought the opportunity for more thorough exploration along routes which the hasty survey of war-time had indicated. Let me give you one or two examples. The shortage of the common constituents of bacteriological media led Captain S. R. Douglas, now directing the Bacteriological Department of the Institute to devise, early in the war, a simple method of making such media from natural pancreatic digests of meat or other protein materials—a method which has safely established itself as a valuable aid to all kinds of bacteriological work. The necessity for making certain bacterial vaccines in large quantities, led him to investigate the value for this purpose of bacteria killed, dehydrated, and freed of their oily constituents by extraction with pure acetone. Again he found a method of wide application and usefulness. Possibly a combination of the two kinds of experience led him next to try the effect of the pancreatic ferments on the acetone extracted bacteria. The result is already full of promise, as giving, perhaps, the long-sought method for extracting from many bacteria the poisonous substances which they liberate when they undergo digestion by the ferments of the blood and tissues, and which are responsible for the symptoms constituting what we call the "disease." Hitherto the treatment of disease by antitoxic sera has had its most convincing success against infection by organisms, such as the diphtheria bacillus, which form their soluble poisons even when grown in an artificial broth. Large sums of money have been expended, and the lives of devoted investigators have been sacrificed in unsuccessful attempts to extract from organisms like the typhoid bacillus the toxic substances which they liberate in the body, so as to prepare antitoxins which will neutralise them. In some cases, such as those of the dysentery bacillus and the meningococcus, a fair measure of success has been obtained by injecting suspensions of the organisms themselves into horses and allowing the animals' own body juices to dissolve them and to excite the production of the appropriate antibodies. Captain Douglas's work, growing under the conditions of peace out of his experience during the war, gives hope of a real step forward in the direction of obtaining sera of higher and of definitely measurable value for the treatment of such diseases.

Researches on Tetanus and Silicosis.

Let me quote another example. During the war Dr. W. E. Gye's duties brought him into contact with the danger of tetanus from heavily infected wounds. The organism of tetanus produces an extremely potent toxin in the laboratory, and the antitoxin produced by immunising horses to this was used on a great scale, and undoubtedly saved many lives during the war. But no sufficient explanation was available of certain curious facts concerning the growth of the bacillus and the production of its toxin in the body. A suspension of washed tetanus bacilli or their spores can be injected without harm. If soil is introduced with them they will germinate, flourish, and produce the toxin which causes the disease. With Dr. W. Cramer, of the Imperial Cancer Research Fund, Dr. Gye investigated the soluble constituents of the soil, and found that two common constituents, calcium chloride and hydrated soluble silica, have the property that, when either of them is injected with tetanus spores under the skin of a mouse, it provides the necessary condition for the germination of the spores and the production of the disease. Now this knowledge, which the experimental use of animals alone could have produced, is bound to have a great influence on ideas as to the conditions under which the presence of tetanus organisms in a wound entails the development of tetanus. It is a new step in the direction of eliminating one peculiarly ghastly disease. But it goes much further than that. It directs attention anew to another condition with which the presence of silica has long been associated, though the nature of its action has been obscure. The fact that working in air impregnated with certain kinds of dust leads to injury to the lungs and predisposes to pulmonary consumption has been recognised for centuries. Though the special prevalence of this condition, in workers in materials creating a siliceous dust, has long been known, it is only since Haldane's work in 1902 that the singular position of silica, and the practical harmlessness, or even protective action of other dusts, have been made clear. But though it is now clear that the presence of silica in the lungs leads to fibrosis and predisposes to consumption, and though the vast importance of the matter for the hygiene of many kinds of workers is recognised, and though the possible means of its prevention are being vigorously investigated, such understanding of the condition as could lead to rational measures for its treatment has been wholly wanting. Now comes this evidence that hydrated silica, in colloidal solution, can lead to the germination of tetanus spores in the tissues. Already Dr. Gye has applied this

[1] An address read at the annual general meeting of the Research Defence Society on June 29th.

knowledge to a study of the mode of action of silicic acid on the tissues and its influence on the growth of other organisms, and already, with Dr. E. H. Kettle, of St. Mary's Hospital, he has been able to show that the tubercle bacillus, which normally in the tissues of the mouse causes at most a localised nodule of infection, when injected with silicic acid causes, in the same species, a spreading infection in the tissues which the silica has injured. Here, then, opens the possibility of a new light on the problem of the consumption which is a scourge of the tin miners, of the gold miners, of the knife grinders, of the ganister-brick makers, of a whole army of workers in indispensable trades; a possibility of new light from an unexpected quarter, shed by knowledge which would be altogether beyond reach without experiments on animals. And surely even a small step towards the solution of a problem of such importance to humanity is worth the sacrifice of a few mice or rabbits.

Disseminated Sclerosis.

Another example of work which, also in Dr. Gye's hands, is giving great promise, is the investigation of the disease of the central nervous system known as disseminated or multiple sclerosis. This is a condition regarded as so little susceptible to treatment that but few cases are to be seen in the voluntary hospitals, which must allot their beds to patients for whom there is some hope of remedy. It is to the Poor-law infirmaries that you must go to realise how many are the victims smitten by this mysterious and distressing disease, dragging its course, with alternations of apparent arrest and inevitable progress, through years of misery, for which no fault of the patient or his parents is in any way responsible. The disease has long been recognised and studied by physicians and morbid anatomists, who had arrived at the conclusion that it was "a derangement of the central nervous system due to an inherent defect." Now comes Dr. Gye's evidence that it is due to a definite infection, since the affected nervous matter or the cerebro-spinal fluid from a human victim, when injected into rabbits, can transmit the disease, and evoke in them the characteristic lesions of the nervous system. At once we are lifted into an atmosphere of new possibilities. Nobody can investigate the means of preventing, or can suggest rational means of treating "an inherent nervous defect." But here is an infection, with an organism to be discovered, its channel of entry to be identified, its means of access to be removed, the methods for its elimination to be explored. He would be a rash man who would prophecy with confidence, or awaken expectations of early results. But at least there is new hope; there is a line of investigation to pursue. Who, with any knowledge of the vast sum of misery due to this one disease, will dare to lift a finger or speak a word which can hinder?

Other Branches of Work.

I should keep you much too long if I were to try to indicate to you merely the lines of work on which all the different workers in the Institute have embarked. Much of it, such as Dr. Leonard Hill's work on the conditions of ventilation and surface cooling needed for health and vigour, hardly needs at the moment experiments on animals of the kind which your Society is chiefly concerned to defend from ignorant attacks and misrepresentation. His usual experimental animals are himself, his colleagues, and volunteers from the Institute's personnel. Dr. John Brownlee, in his statistical department, takes his material chiefly from the large scale experiments which our ignorance allows Nature still to make on our fellow men. Mr. Barnard's investigation of the minute structure of micro-organisms, by means of his most recent developments of microscopic and photographic technique; Mr. Clifford Dobell's critical survey of the proto-zoological examinations made on the excreta of people in this country, showing the unsuspected presence of the amœba of tropical dysentery in a material percentage of us healthy Englishmen; these depend hardly at all on the use of animals for experiment at the moment. But the whole significance and value of all their work depend on the knowledge which we could not have obtained except by the directly experimental method.

There are many other items of our activity I could describe: Dr. Leonard Colebrook's work on actinomycosis, work by others of us on shock in wounded men, and on the significance of the capillary circulation in connexion therewith, work on anaphylaxis, on the reaction of blood in the body, and so forth. But there is only one other side of our work which I can mention with any detail. A very important task on which some members of our staff have been engaged has been the control of the activity and freedom from dangerous toxicity of some of the modern potent remedies, such as salvarsan and its analogues, which cannot by any known chemical test be guaranteed as invariably safe for use in human theuraputics. I need not say that such remedies were discovered by means of experiment on animals; but I am not sure whether it is generally realised that there is a large and growing class of them which could not be used at all, with any confidence in their efficacy and in their safety for the patient, if their quality were not subjected, regularly and systematically, to the test of experiment on animals. I venture to say that it is hardly creditable to this country that we have hitherto had no publicly established organisation for the control of such remedies; but, to the limited extent to which the present state of our law and the willing coöperation of British manufacturers make it possible, such control is already being exercised by a department of the National Institute.

I could spend much longer telling you of our plans, but I have said enough to enable you to realise how sincerely, with all workers in medical science, we must appreciate the efforts of this Society to help us, by developing a sane and informed public opinion. Genuine, well-informed criticism we shall always welcome; indeed, as an Institute supported out of public funds, it is peculiarly our duty to have to regard it. On the other hand, we should be false to our trust if we spent the time, which the Government pays us to give to research, in controversy with ignorance which no truth will convince. We realise the immense service to science which this Society is doing in making the real facts of the situation available to all who sincerely desire to know them.

PUBLIC HEALTH IN EGYPT, 1919.[1]

THE population of Egypt in 1919 is calculated to have been 12,878,000, as compared with 12,905,500 in 1918; on this basis the birth-rate was 38 and the death-rate 30 per 1000, as compared with 39 and 40 respectively per 1000 in 1918. Disregarding the exceptional cases of Ismailia (with a birth-rate of 160 and a death-rate of 241), and the Sinai province (with corresponding ratios of 78 and 113), the births ranged from 28 per 1000 in Aswân province to 44 in Port Said, Damietta, and Asyut; and the deaths from 25 in Damietta and Beni Suef to 41 in Alexandria and 42 in Cairo. In the case of each of these two large cities the deaths exceeded the births, which were 35 and 40 per 1000 respectively. Colonel Cathcart Garner, Director-General of the Department of Public Health, states that it was found that the formidable increase in cost of articles of food was having a very deleterious effect on the health of the population, especially of the poorer classes; and that energetic measures were taken, especially as regards the sale of flour at reasonable prices, by which a great improvement was brought about. This is a point that should be noted by the advocates of a policy of "self-determination" in countries, such as Egypt and India, where it is the strength and justice of British rule that constitutes a guarantee against oppression of the poorest and most helpless classes of the population. Much improvement has been effected in the methods of dealing with "unhealthy, inconvenient, and dangerous establishments"; model conditions for fifty different types of such (chiefly connected with the manufacture, storage, or sale of articles of food or drink) were laid down and published; all such licensed establishments were registered, and special inspectors appointed to ensure that the regulations were carried out. It is, however, admitted that these new conditions cannot be applied to existing establishments, in many cases, without practically pulling down the old building and reconstructing it anew; such a drastic procedure is not carried out, but improvements are effected, as far as possible, with the consent and goodwill of the proprietors.

There are 24 general hospitals in Egypt, providing 4592 beds, and the in-patients numbered 64,704, compared with 75,002 in 1918. The reduction was partly due to the disturbed state of the country in March, April, and May, and partly to the cessation of the epidemic of influenza. There is, however, an increased disposition on the part of the population to avail themselves of hospital treatment, and increase of accommodation is required in many places. There were also 219,573 new out-patients treated. The cost of maintenance was 183,142 livres Egyptiennes (one L.E. = 20*s.* 3¾*d.*), being an increase of L.E. 16,923 on that of the previous year, due to the high prices of food, drugs, &c.; the cost of building repairs and of the central administration is not included in this sum. The expenditure per bed per annum was L.E. 39.883, and per patient per day 179 milliemes (about 45 pence), as compared with 130 milliemes (32½ pence) in 1916. Since the commencement of the war there has been a total of 45,172 military patients (including prisoners of war) admitted to various hospitals throughout the country; 23,044 were discharged fit for duty, and 1307 died, the remainder being sent to convalescent camps, transferred to other hospitals, or discharged to England. During 1919 the total hospital in-patients treated throughout Egypt numbered 64,704, the most prevalent affections being venereal disease (9811), traumatic injuries (3929), dysentery, diarrhœa and enteritis (1679), and fractures (1544). There were 770 cases of ankylostomiasis, but only 667 of malaria.

[1] Annual Report of the Department of Public Health. Cairo: Government Press. 1921.

The training of native midwives has been continued, though the seven training centres had to be closed for various periods on account of the disturbances in March; 59 *dayas* were trained, a better type of pupil is being secured, and a considerable amount of public interest is now being taken in the matter. Another most important work is that of the ophthalmic hospitals, of which 18 have been established since Sir E. Cassel made his gift of 40,000 livres Egyptiennes in 1903; 14 hospitals have been built and equipped at a cost of L.E. 65,000, mainly raised by subscriptions among the Egyptians themselves. There are five travelling camp hospitals, of which it is stated that it is owing to the reputation gained by them that Egypt has learned to value the means of ophthalmic relief, and to obtain it by building permanent hospitals. More than 12,000 patients (15 per cent. of the new cases) during 1919 were blind in one or both eyes. A system of prophylaxis has yet to be discovered, but the clinical research work which is being carried out should eventually shed some light on prophylactic measures. The importance of treatment in young children is beginning to be recognised by the people, more than 6 per cent. of the cases were infants less than a year old, and 39 per cent. were under 15 years of age. All the provinces, except two, now have an ophthalmic hospital. Colonel Garner states that it is impossible to cope with the ophthalmic work in Cairo with the existing facilities, and that a new hospital with 100 beds, and able to treat 2000 cases daily in the summer, is urgently required.

In regard to infectious diseases generally, there was less typhus than in the four preceding years, but the death-rate (32·8 per cent.) among the 16,970 cases was higher than in any year since 1912; a similar observation applies to relapsing fever (3272 cases and 598 deaths). Small-pox was much more prevalent (7895 cases, of which 24·39 per cent. were fatal) than in any of the preceding nine years; the number of cases reported was probably much below those that actually occurred, but was still much higher than in any year of the decennium, 1910–19. Malaria was prevalent in the province of Aswân (1304 cases), especially in the district of Derr, where Abu Simbel (so well known to travellers on account of its gigantic statues) had a mortality in November at the rate of 400 per 1000 per annum. Anti-mosquito measures were taken immediately, and a passenger control station established at Shellal, just above Aswân. Influenza was made compulsorily notifiable in February, 2106 cases being recorded, and practically disappeared during that month. There were 877 "declared cases" of plague, of which 737 were of the bubonic type; 224 cases, with 112 deaths, occurred in the district of Mallawi in Asyut province, and 126 cases with 76 deaths in the governorate of Suez. Throughout Egypt as a whole, 59·4 per cent. of the deaths occurred in April, May and June. A very great increase in the output of vaccine lymph is recorded, 5,645,020 doses having been issued, compared with 1,428,500 in 1918; the quality, however, was kept up to a high standard, 81·8 of the samples tested producing four pustules. Of 860 persons fully treated at the Anti-rabic Institute only five died (0·58 per cent.); 15 others died either during treatment or less than 15 days after its completion, giving an additional mortality of 1·74 per cent. An increase of activity in many other spheres of public health work throughout the country is recorded in this interesting report. A map showing the existing administrative divisions of the country, such as are attached to the reports of most of the Indian and Colonial Governments, would be an acceptable addition.

HOUSING IN YORKSHIRE AND LANCASHIRE.

Overcrowding in Yorkshire.—At the Yorkshire Housing and Town Planning Conference held in Leeds on July 1st, the Chairman, Mr. E. Hawksworth, said that if they set about educating the working classes to the knowledge that it would be to the advantage of both themselves and their cities to live in a better type of house, it would be a very useful service. It was not always the poorest who lived in the worst house. The Conference passed the following resolution:—

"That this Conference is emphatically of opinion that to enable the declared policy of the Ministry of Health concerning the deflation of prices in building tenders to be carried into effect, with the goodwill and full approval of local authorities in Yorkshire, the Minister of Health will be wise in recognising that wasteful and uneconomic results will inevitably follow if the financial officers of the Ministry continue to insist that schemes must be completed by July, 1922."

It was stated by one speaker that in the village of Grimethorpe he had come across three houses, each with two bedrooms and two downstairs rooms, in each of which there were no less than 27 people living. Such a condition of affairs was a standing disgrace to the country.

Conditions in Manchester.—At a meeting of the Lancashire and Cheshire Housing Council held in Manchester on June 28th the Chairman of the Manchester Housing Committee stated that for the needs of the nation 800,000 houses were required, but little progress had been made. At the end of the war 17,000 new houses were required to meet the actual shortage in Manchester alone, and if the slums were cleared away, 50,000 houses would be needed. Up to now 300 houses had been finished; work had been started on 2000, and it was calculated that by November next year—four years after the armistice—perhaps 2500 houses would be completed. To meet the annual increase of population in Manchester alone, 1500 new houses were needed—i.e., between 1918—22, 6000 were required and only 2500 would be available for the increased population during the four years. With the 17,000 required at the end of the war 23,000 houses should have been built. In the district of Didsbury, on the outskirts of the city, it was found that in three streets so great was the overcrowding that 20 per cent. of the houses had not enough rooms to allow separation of the sexes. Girls and boys between the ages of 10 and 18 years were sleeping in the same bedrooms. A resolution was passed calling upon the Government and Members of Parliament to fulfil the pledges given in 1918 relative to a National Housing Scheme. There are upwards of 10,000 people on the waiting lists in Manchester who are prepared to pay the rents demanded by the Ministry of Health.

Overcrowding in the South and West.—That the above information is typical of the state of affairs throughout the country is made evident by the annual reports of the medical officers of health for Norwich, Colchester, Torquay, Hove, Margate, Southwark, and Stoke Newington, in each of which mention is made of serious housing shortage and consequent overcrowding.

RUBBER RINGS ROUND TEST-TUBES.

A SUGGESTION especially useful for anyone who has to do minor chemical investigations in inconvenient surroundings is made in the *Chemical News* (July 1st, p. 7) by "W. K. F." Rubber rings, as he says, are obtainable in all sizes and the placing of a ring about ¾ inch in diameter round a test-tube about 1 inch from the mouth has many advantages. The ring enables a test-tube to be supported between two nails driven into the edge of a shelf, and, moreover, enables it to be laid on a bench when not too full without spilling the contents, besides saving the fingers when the tube is held over a burner. "W. K. F." claims also that the ringed tube is less liable to be broken. Though the trained chemist in a well-equipped laboratory may find little use for this simple expedient, we can imagine its adoption by medical men to save the space of a test-tube stand.

THE WOMEN'S HOLIDAY FUND.

AN appeal is made for assistance to carry on the excellent work of the Women's Holiday Fund, a work rendered more than ever necessary this year by the distress arising through unemployment. In a period of economic stress the working woman is generally the first to suffer; her sacrifices for husband and children soon deprive her of the necessaries of life, and certainly of such a luxury as a holiday. More help is needed if many of these tired women are to obtain a rest in the country or at the seaside; they themselves can contribute but little towards the necessary expenses, and it is hoped that there will be a very generous response to the appeal from all to whom the thought of passing a year without such a change is inconceivable. The society has just opened, at St. Leonards-on-Sea, a small Home of its own, with a trained matron in charge, where good food and rest are available for a few London women and their babies. The full cost of a fortnight's holiday for a mother and baby, including railway fare, is £3 10*s*. Ten guineas will provide a holiday for three mothers and babies. Contributions, large and small, towards the upkeep of the Home and also for the general work of the Fund, are urgently needed, and should be sent to the Secretary, Women's Holiday Fund, 76, Denison House, 296, Vauxhall Bridge-road, S.W. 1.

L.R.C.S.I., L.S.A.—Our correspondent has decided on the best suburban locality in the circumstances which he mentions.

THE LANCET: SUBSCRIPTION RATES.

INLAND	One Year	£2	2 0
	Six Months	1	1 0
	Three Months	0	10 6
ABROAD	One Year	£2	10 0
	Six Months	1	5 0
	Three Months	0	12 6

Subscriptions may commence at any time, and are payable in advance.

ADVERTISEMENT RATES.

Books and Publications . . . . . Four Lines and under 6*s*. 0*d*.
Official and General Announcements . . . . .
Trade and Miscellaneous Advertisements . . . . .
Every additional line, 1*s*. 6*d*.
Quarter Page, £3. Half a Page, £6. Entire Page, £12.
Special Terms for Position Pages.